

NOTES ON BROMELIACEAE, XXI

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PITCAIRNIA

The following synopsis of Pitcairnia is long overdue, especially as there is little hope of publishing it as part of a monograph in the near future. The last complete treatment was that of Mez in the "Pflanzenreich" in 1935 with some 183 species. Since then, over 40 species either have been transferred to Puya or reduced outright and more than 100 new species have been added.

In preparing the key, I have not tried to make it taxonomic, although it approaches that state in places. Rather I have tried to produce something that would give accurate and rapid identifications. This is not easy with the best material and involves mounting the sepals to show their shape when unrolled and dissecting the ovary to ascertain the type of appendage on the ovule. The worst material, which unfortunately involves several unicate types, must have each species entered in several places in the key in order to cover all contingencies.

On the other hand, geographic correlations have proved quite helpful. For instance primitive types with compound inflorescences are not found in Mexico, while advanced types with deciduous leaves predominate there in response to a strong dry season but are absent in the West Indies. Subgenus Pitcairnia centers in the northern Andes while in the Amazon and Orinoco drainages it is almost wholly replaced by subgenus Pepinia.

The species in the text are in roughly taxonomic order by subgenera, but ignorance of the type of ovule-appendage makes the position of several conjectural. I believe that this is the basic division of the genus and that the broadly alate ovule is the more primitive, though this last is difficult to prove.

The line between Puya and Pitcairnia subgenus Pepinia is sometimes difficult to draw, so I am retaining P. ferruginea and P. nana in Pitcairnia on the basis of their slightly inferior ovaries and P. mirabilis on account of its somewhat zygomorphic flowers. They might equally well go in Puya on account of their strongly twisted petals in age, but there is no point in changing the status quo unless a definite improvement is gained thereby.

1. Inflorescence compound (sometimes normally simple inflorescences develop 1 or 2 lateral branches and such should be sought below if not found here).....Subkey I
1. Inflorescence simple.
 2. Floral bracts ample, covering most or all of the flower just before anthesis (unknown in P. quesnellicoides); leaves persistent, usually petiolate; pedicels mostly short and stout
Subkey II

2. Floral bracts narrow or small, exposing most or all of the flower.
3. Larger leaf-blades deciduous along a straight transverse line, grass-like, almost never petiolate; plants evidently of a strongly xerophytic habitat.....Subkey III
3. Larger leaf-blades (and all others) persistent, often petiolate; plants of a more mesophytic habitat.
4. Leaf-blades narrowed at base to a definite petiole.
4. Leaf-blades little if at all narrowed at base, not definitely petiolate.
5. Leaf-blades serrate at least in part.....Subkey V
5. Leaf-blades entire throughout.....Subkey VI

SUBKEY I

1. Leaf-blades (or the larger if dimorphic) uniformly spinose-serrate or serrulate (unknown in P. platystemon), persistent
2. Ovules and seeds alate with the appendage not produced at base or apex (not known in P. viridis), species of the Amazon and Orinoco drainages and two (P. ferruginea and P. viridis) of the central Andes. Pl. I, fig. 1.
3. Leaf-blades 90 mm wide; flowers reflexed. Venezuela.
 1. P. agavifolia
3. Leaf-blades not over 75 mm wide.
 4. Sepals densely ferruginous- or brown-lepidote, obtuse.
 5. Sepals ferruginous-lepidote, 12-45 mm long; inflorescence usually ample. Ecuador, Peru, Bolivia.
 34. P. ferruginea
 5. Sepals brown-lepidote, 12 mm long; inflorescence pseudo-simple with branch-buds in the axils of the lower bracts. Peru.....35. P. viridis
4. Sepals whitish-lepidote or glabrous.
6. Sepals 40-50 mm long; petals naked.
 7. Floral bracts minute, much shorter than the 20-30 mm pedicels; flowers pendent-secund. British Guiana, Surinam.....2. P. nuda
 7. Floral bracts exceeding the 5-12 mm pedicels; flowers suberect.
 8. Leaf-blades covered beneath with cinereous scales. Venezuela.....3. P. wurdackii
 8. Leaf-blades glabrous on both sides. Colombia.
 4. P. mituensis
6. Sepals 13-35 mm long.
 9. Primary bracts equaling or exceeding the sterile bases of the branches.
 10. Flowers strict; branches 5-6 cm long, simple; sepals 14 mm long. Venezuela.....5. P. kunhardtiana
 10. Flowers spreading; branches 10-35 cm long.
 11. Inflorescence bipinnate; sepals acute, 35 mm long. Venezuela, Colombia.....6. P. bulbosa

- 11. Inflorescence tripinnate; sepals obtuse, 20 mm long.
Colombia.....7. P. heliophila
- 9. Primary bracts shorter than the sterile bases of the branches.
- 12. Flowers sessile; sepals acute, 15-18 mm long.
Venezuela.....8. P. armata
- 12. Flowers distinctly pedicellate.
- 13. Flowers pendent-secund.
- 14. Floral bracts 8 mm long, exceeding the short pedicels; leaf-blades wholly glabrous. Venezuela.
9. P. breweri
- 14. Floral bracts 4 mm long, much shorter than the pedicels; leaf-blades cinereous-lepidote beneath.
Surinam.....10. P. geyskesii
- 13. Flowers ascending to spreading, not at all secund.
- 15. Pedicels ascending; sepals abruptly acute. Venezuela
11. P. pruinosa
- 15. Pedicels stiffly spreading; sepals acuminate.
Venezuela, Colombia, Brazil.....12. P. patentiflora
- 2. Ovules and seeds bicaudate or subalate with the appendage more extended at the ends than at the side. Chiefly Andean South America and West Indies. Pl. I, figs. 2, 3.
- 16. Sepals echinate or tuberculate, 27-45 mm long.
- 17. Floral bracts acuminate, nearly equaling to exceeding the 10-30 mm pedicels; sepals 35-45 mm long. Colombia.
44. P. echinata
- 17. Floral bracts apiculate, 5 mm long; pedicels 10 mm long; sepals 27 mm long. Venezuela.....45. P. tuberculata
- 16. Sepals not more than lepidote.
- 18. Inflorescence pseudo-simple with branch-buds in the lower bracts, few-flowered; sepals 12 mm long, brown-lepidote. Peru.....35. P. viridis
- 18. Inflorescence obviously branched.
- 19. Petals yellow, cream or green.
- 20. Pedicels 10 mm long; petals appendaged. Hispaniola.
232. P. samuelssonii
- 20. Pedicels 15-23 mm long; petals naked.
- 21. Sepals 8 mm wide, asymmetric; floral bracts about half as long as the pedicels. Peru.....46. P. puyoides
- 21. Sepals 4.5 mm wide; floral bracts much more than half as long as the pedicels. Bolivia.....47. P. platystemon
- 19. Petals red, appendaged.
- 22. Pedicels 20-25 mm long, not exceeding the lower floral bracts. Jamaica.....233. P. bromeliifolia
- 22. Pedicels not over 15 mm long.
- 23. Leaf-blades homomorphic, 10-20 mm wide, the spines to 3 mm long; sepals abruptly acute or obtuse. Puerto Rico, Lesser Antilles.....234. P. angustifolia
- 23. Leaf-blades dimorphic, mostly more than 20 mm wide.
- 24. Leaf-blades 10 mm wide; inflorescence few-branched. Dominican Republic.....235. P. fuertesii
- 24. Leaf-blades 25-40 mm wide.

- 25. Sepals 25 mm long; larger leaf-blades scarcely narrowed at base. Lesser Antilles....236. *P. gracilis*
- 25. Sepals 15-18 mm long; larger leaf-blades more or less petiolate.
- 26. Sepals densely and persistently pale-lepidote. Peru.
48. *P. pulverulenta*
- 26. Sepals soon glabrous. Peru, Bolivia.
49. *P. paniculata*
- 1. Leaf-blades only partially spinose-serrate or serrulate or else entire.
- 27. Sepals obtuse or rounded and apiculate; ovules or seeds mostly with an apical appendage (broadly winged in *P. killipiana* and unknown in *P. lechleri* and *P. verrucosa*).
28. Leaves wholly entire, the blades all persistent.
- 29. Pedicels 40 mm long; leaves petiolate; sepals verrucose. Colombia.....50. *P. verrucosa*
- 29. Pedicels 5-19 mm long.
- 30. Lateral branches only 2 cm long; inflorescence narrowly thyrsoid. Peru.....51. *P. ruiziana*
- 30. Lateral branches much longer.
- 31. Racemes much longer than their peduncles, lax; sepals 33 mm long. Colombia.....36. *P. killipiana*
- 31. Racemes no longer than their peduncles; sepals 15-20 mm long.
- 32. Plant 2 m high; leaf-blades 40 mm wide. Colombia,
Ecuador.....52. *P. dendroidea*
- 32. Plant 7 dm high; leaf-blades 18 mm wide. Dominican Republic.....237. *P. jimenezii*
- 28. Leaves partially spinose-serrate or serrulate.
- 33. Leaf-blades (the larger ones) deciduous along a straight transverse line; pedicels 5-7 mm long; petals appendaged
- 34. Floral bracts exceeding at least the lower pedicels;
sepals 12 mm long. Peru.
- 35. Leaves all alike; blades to 9 mm wide.....53. *P. rigida*
- 35. Leaves dimorphic; blades to 20 mm wide...54. *P. lechleri*
- 34. Floral bracts all much shorter than the pedicels.
- 36. Leaves all alike; sepals 11-15 mm long. Peru, Bolivia.
55. *P. inermis*
- 36. Leaves dimorphic; sepals 22 mm long. Colombia.
56. *P. arenicola*
- 33. Leaf-blades all persistent; pedicels 4-30 mm long.
- 37. Leaf-blades long-spreading-spinose at base, 30-40 mm wide; inflorescence amplly bipinnate. Colombia, Ecuador
38. Pedicels 15 mm long.....57. *P. commixta*
- 38. Pedicels not over 7 mm long.....58. *P. lehmannii*
- 37. Leaf-blades (larger) not prominently spinose at base (or not over 22 mm wide), 8-32 mm wide; inflorescence de-pauperate-compound.
- 39. Pedicels 15-30 mm long; sepals 20-30 mm long.
- 40. Leaves all alike. Jamaica.....238. *P. platyphylla*
- 40. Leaves dimorphic.
- 41. Petals naked. Argentina.....59. *P. oranensis*

- 41. Petals appendaged. Peru, Bolivia, Brazil.
60. P. subpetiolata
- 39. Pedicels 4-14 mm long.
- 42. Leaf-blades 20-35 mm wide, petiolate or subpetiolate.
- 43. Sepals 27 mm long; scape-bracts nearly all remote.
Argentina.....59. P. oranensis
- 43. Sepals 10-18 mm long.
- 44. Leaves spreading-spinose at base. Peru.
61. P. truncata
- 44. Leaves finely serrulate at most. Argentina.
62. P. chiriquana
- 42. Leaf-blades 8-18 mm wide, slightly if at all narrowed
at base.
- 45. Petals yellow or cream; sepals 21 mm long; flowers
finally recurved. Hispaniola...232. P. samuelssonii
- 45. Petals red; sepals 12-20 mm long.
- 46. Petals naked or with 2 minute oblique calli; sepals
12 mm long. Peru.....63. P. tarapotensis
- 46. Petals bearing a large scale at base; sepals 14-20 mm
long.
- 47. Sepals 20 mm long. Dominican Republic.
237. P. jimenezii
- 47. Sepals 14-16 mm long. Cuba.....239. P. cubensis
- 27. Sepals acute or acuminate.
- 48. The sepals 30-50 mm long.
- 49. Sepals echinate with stipitate-stellate trichomes.
Colombia.....44. P. echinata
- 49. Sepals not more than lepidote or verruculose.
- 50. Leaf-blades petiolate, persistent, 50-55 mm wide;
pedicels 20 mm long. Colombia.
- 51. Sepals 38 mm long; pedicels biangulate, exceeding the
persistent floral bracts.....64. P. choocoensis
- 51. Sepals 50 mm long; pedicels terete, shorter than the
deciduous floral bracts.....65. P. haughtii
- 50. Leaf-blades only slightly narrowed toward base, 15-30 mm
wide.
- 52. Racemes dense; floral bracts narrowly lanceolate;
larger leaf-blades deciduous. Colombia.
66. P. megasepala
- 52. Racemes lax; floral bracts broad.
- 53. Leaf-blades trimorphic, the largest deciduous, entire.
Colombia.....67. P. trimorpha
- 53. Leaf-blades apparently all alike, persistent, serrulate
especially toward base; sepals verruculose.
Colombia, Ecuador.....68. P. poortmanii
- 48. The sepals 9-25 mm long.
- 54. Floral bracts equaling or exceeding the lower pedicels.
- 55. Petals white, yellow or green; sepals 12-22 mm long.
- 56. Sepals 12-15 mm long; floral bracts ample, imbricate
before anthesis, then deciduous. Colombia.
69. P. kniphofioides
- 56. Sepals 21-22 mm long; floral bracts persistent.

- 57. Lower floral bracts lanceolate, about equaling the sepals. Colombia..... 70. P. tolimensis
- 57. Lower floral bracts broadly ovate, at most equaling the pedicels. Bolivia..... 47. P. platystemon
- 55. Petals red (uncertain in P. ulei, but the lower floral bracts narrow and about equaling the pedicels).
58. Leaves all alike or nearly so.
59. Sepals 10-16 mm long.
60. Panicle ample; leaf-blades 13-19 mm wide. Venezuela,
Trinidad..... 71. P. integrifolia
- 60. Panicle depauperate; leaf-blades 10 mm wide. Cuba.
239. P. cubensis
- 59. Sepals 18-25 mm long.
61. Ovary only 1/3 superior; panicle depauperate, subdense
with ascending branches; sepals 25 mm long. Brazil.
248. P. ulei
- 61. Ovary 1/2-3/4 superior.
62. Pedicels 20-25 mm long. Jamaica.
233. P. bromeliifolia
- 62. Pedicels 10-15 mm long.
63. Floral bracts elliptic, apiculate. Peru.
72. P. cassapensis
- 63. Floral bracts narrow, acuminate.
64. Inflorescence amply paniculate; floral bracts
mostly shorter than the pedicels. Brazil.
249. P. anthericoides
- 64. Inflorescence few-branched; floral bracts mostly
exceeding the pedicels.
65. Leaves dilated above the sheath; sepals 19 mm
long. Venezuela..... 73. P. moritziana
- 65. Leaves not dilated above the sheath; sepals 25 mm
long. Puerto Rico (?), Lesser Antilles.
240. P. latifolia
- 58. Leaves strongly dimorphic.
66. Primary bracts about half as long as the axillary
branches and much exceeding their short sterile
bases. Peru..... 74. P. cuzcoensis
- 66. Primary bracts several times shorter than the axillary
branches and usually shorter than their sterile bases
67. Scape 2-3 mm in diameter; foliaceous leaves not over 5
dm long; plant to 5 dm high. Colombia.
75. P. schultzei
- 67. Scape stouter; foliaceous leaves to 7 dm long or more;
plant over 1 m high.
68. Larger leaf-blades deciduous. Peru.
76. P. vargasiana
- 68. Larger leaf-blades persistent.
69. Smaller leaf-blades spiniform. Panama.
186. P. chiriquensis
- 69. Smaller leaf-blades with an entire filiform flexuous
apical half. Venezuela, Trinidad.
71. P. integrifolia

- . 54. Floral bracts all shorter than the pedicels.
- 70. Petals yellow, green or cream; pedicels to 25 mm long; ovary over 1/2 superior.
 - 71. Floral bracts broadly ovate. Bolivia. 47. P. platystemon
 - 71. Floral bracts narrowly triangular. Costa Rica. 77. P. halophila
- 70. Petals red or rarely blue (uncertain in P. ulei, but the pedicels only 8 mm long and the ovary only 1/3 superior).
 - 72. Panicle depauperate, few-branched.
 - 73. Pedicels to 8 mm long; ovary 1/3 superior. Brazil. 248. P. ulei
 - 73. Pedicels 15-30 mm long; ovary 1/2-2/3 superior.
 - 74. Leaves all alike, the blades 18-32 mm wide. Jamaica. 238. P. platyphylla
 - 74. Leaves dimorphic, the larger blades only 11 mm wide. Guatemala.....187. P. flagellaris
- 72. Panicle ample, much branched.
- 75. Sepals and ovary echinate; stamens exserted. Colombia. 78. P. exserta
- 75. Sepals and ovary not more than lepidote.
- 76. Ovules and seeds winged; pedicels straight, spreading, 3-4 times longer than the floral bracts. Colombia, Venezuela, Brazil.....12. P. patentiflora
- 76. Ovules and seeds caudate to apiculate; pedicels mostly curved.
- 77. Sepals 9-17 mm long.
- 78. Inflorescence amplly 3-pinnate; pedicels 5-7 mm long; leaves all alike; sepals 9-12 mm long. Costa Rica 188. P. valerii
- 78. Inflorescence not more than 2-pinnate or the pedicels 10-15 mm long; leaves mostly dimorphic.
- 79. Floral bracts nearly equaling the pedicels, lanceolate; leaves alike with blades 13-19 mm wide or the reduced ones with soft entire filiform apices Venezuela, Trinidad.....71. P. integrifolia
- 79. Floral bracts not much more than half as long as the pedicels or less.
- 80. Larger leaf-blades 25-35 mm wide.
- 81. Sepals densely and persistently pale-lepidote. Peru.....48. P. pulverulenta
- 81. Sepals soon glabrous. Peru, Bolivia. 49. P. paniculata
- 80. Larger leaf-blades to 15 mm wide.
- 82. Branches suberect; petals bearing a scale at base Ecuador.....79. P. devansayana
- 82. Branches spreading; petals naked or with 2 oblique calli. Peru.....63. P. tarapotensis
- 77. Sepals 18-25 mm long.
- 83. Leaf-blades 80 mm wide; inflorescence 4-pinnate; sepals green. Colombia.....80. P. diffusa

- 83. Leaf-blades 12-35 mm wide; inflorescence 2-3-pinnate
- 84. Largest pedicels 15-18 mm long; leaf-blades to 35
mm wide. Bolivia.....81. P. multiramosa
- 84. Largest pedicels 9-13 mm long.
- 85. Ovary 3/4 to almost wholly superior; leaf-blades
22-35 mm wide.
- 86. Leaf-blades furfuraceous beneath; petals naked.
Bolivia.....82. P. odontopoda
- 86. Leaf-blades not conspicuously furfuraceous
beneath; petals appendaged. Peru, Bolivia.
49. P. paniculata
- 85. Ovary only about 1/2 superior; leaf-blades 12-30
mm wide.
- 87. Leaf-blades to 12 mm wide; ovules very short-
caudate. Brazil.....249. P. anthericoides
- 87. Leaf-blades 20-30 mm wide.
- 88. Leaves petiolate; petals naked. Bolivia.
83. P. divaricata
- 88. Leaves not petiolate; petals appendaged. Lesser
Antilles.....236. P. gracilis

SUBKEY II

- 1. Scape very short or none; inflorescence short.
- 2. Sepals carinate, 35-40 mm long; leaf-blades linear-triangular
Bolivia.....37. P. nana
- 2. Sepals ecarinate, 15-20 mm long.
- 3. Plant caulescent; leaf-blades linear, 5-10 mm wide. Panama,
Peru.....84. P. aphelandriflora
- 3. Plant stemless; leaf-blades oblong-spatulate, 30 mm wide.
Mexico.....189. P. tabuliformis
- 1. Scape well developed (unknown in P. poeppigiana, but the
inflorescence elongate).
- 4. Sepals not over 15 mm long. Colombia.
- 5. Leaves dimorphic; floral bracts quickly deciduous; scape-
bracts shorter than the upper internodes.
69. P. kniphofioides
- 5. Leaves uniform, entire; floral bracts persistent; scape-
bracts all longer than the internodes.
- 6. Floral bracts concolorous, straight; seeds long-caudate.
85. P. capitata
- 6. Floral bracts bicolorous, the upper part strongly reflexed;
ovules obtuse.....86. P. guzmanioides
- 4. Sepals 18-75 mm long.
- 7. Ovary 3/4 inferior, subsessile; capsule indehiscent; ovules
winged; floral bracts deciduous, unknown. Colombia.
13. P. quesnelioides
- 7. Ovary 1/2 inferior or less.
- 8. Sepals exceeding at least the upper floral bracts.
- 9. Floral bracts rounded, obtuse or mucronulate, persistent.
10. Flowers slenderly pedicellate; sepals obtuse, 40 mm
long; leaf-blades entire. Colombia.....87. P. archeri

- . 10. Flowers sessile; sepals acute, 25 mm long; leaf-blades serrate. Peru.....88. P. poeppigiana
9. Floral bracts acute or acuminate, deciduous in some species.
11. Sepals 60 mm long, linear-lanceolate, uncinate. Colombia.....89. P. macranthera
11. Sepals 20-37 mm long.
12. Inflorescence lax toward base.
13. Sepals oblong, rounded and apiculate; floral bracts even, coriaceous. British Honduras, Guatemala, Mexico.....190. P. recurvata
13. Sepals elliptic, obtuse, asymmetric; floral bracts nerved, subchartaceous. Central America, Guiana, Venezuela, Colombia.....90. P. maidifolia
12. Inflorescence dense throughout.
14. Posterior sepals broadly alate-carinate; flowers subsessile; inflorescence ellipsoid, 8 cm long; leaf-blades 20 mm wide. Peru.....91. P. sandemanii
14. Posterior sepals not alate or if somewhat so (? P. sceptriformis) then the flowers slenderly pedicellate.
15. Floral bracts subcoriaceous, persistent.
16. Sepals 20-22 mm long, pale-lepidote; leaf-blades 20-35 mm wide. Lesser Antilles....241. P. spicata
16. Sepals 37 mm long, brown-lanate; leaf-blades 90 mm wide. Colombia.....92. P. maritima
15. Floral bracts membranaceous, more or less deciduous.
17. Flowers subsessile; inflorescence 7 cm long. Peru. 93. P. ferreyrae
17. Flowers slenderly pedicellate for 3-8 mm; inflorescence 20-60 cm long.
18. Sepals carinate; inflorescence glabrous. Peru. 94. P. sceptriformis
18. Sepals ecarinate; inflorescence flocculose, often secund-flowered. Costa Rica to British Guiana and Bolivia.....95. P. brittoniana
8. Sepals completely covered by the floral bracts.
19. Floral bracts with divergent to spreading apices.
20. Leaf-blades elliptic to obovate-lanceolate, only 3-4 times as long as wide; sepals acuminate.
21. Leaf-blades 10-14 cm wide, apiculate. Colombia, Ecuador.....96. P. nigra
21. Leaf-blades 5 cm wide, acuminate. Ecuador. 97. P. pulchella
20. Leaf-blades lanceolate to linear, much more than 4 times as long as broad.
22. Flowers reflexed and the triangular acuminate floral bracts deciduous after anthesis; pedicels 8-10 mm long. Colombia.....98. P. bronniartiana
22. Flowers remaining erect and floral bracts imbricate after anthesis.

- 23. Pedicels 10 mm long, slender, ferruginous-tomentulose.
"Guatemala". (Cultivation)...191. P. longebracteata
- 23. Pedicels very short to almost none, though often slender.
- 24. Floral bracts serrate, 10 cm long; sepals narrowly triangular, 40 mm long. Colombia, Ecuador.
99. P. brunnescens
- 24. Floral bracts entire.
- 25. Petals puberulent outside, orange; remainder of the inflorescence densely ferruginous-lepidote.
Colombia.....100. P. barrigae
- 25. Petals glabrous.
- 26. Floral bracts membranaceous, bladeless; inflorescence obtuse. Mexico.....192. P. matudae
- 26. Floral bracts subcoriaceous or chartaceous.
- 27. Petioles entire.
- 28. Leaf-blades entire; inflorescence subcylindric;
floral bracts with a distinct apical blade.
Central America.....193. P. wendlandii
- 28. Leaf-blades serrulate; inflorescence clavate;
floral bracts without a distinct apical blade.
Peru.....101. P. clavata
- 27. Petioles spinose-serrate.
- 29. Sepals linear-lanceolate, acute, 32-39 mm long.
Colombia.....102. P. squarrosa
- 29. Sepals oblong, truncate or broadly acute and apiculate, 25-30 mm long.
- 30. Floral bracts with a narrowly triangular divergent blade, red-purple, red or yellowish.
Costa Rica to Colombia.....103. P. atrorubens
- 30. Floral bracts acute without a distinct blade,
only slightly divergent, pale green. Ecuador.
104. P. campii
- 19. Floral bracts straight toward apex, usually strict and closely imbricate but lax in P. elongata and spreading in P. maidifolia.
- 31. Sepals 75 mm long; flowers not imbricate nor concealing the rhachis but the apical sterile bracts doing so.
Colombia, Ecuador.....105. P. elongata
- 31. Sepals 18-50 mm long.
- 32. Leaves spinose-serrate either along the petiole or the blade.
- 33. Floral bracts corrugated, soon disintegrating to a fine mesh of fibers; sepals broad, rounded, 40 mm long. Colombia, Ecuador.....106. P. bakeri
- 33. Floral bracts even or finely nerved but not corrugated
- 34. Leaf-blades 75-125 mm wide.
- 35. Sepals 25 mm long, oblong, abruptly acute. Peru.
88. P. poeppigiana
- 35. Sepals 45-50 mm long.

- 36. Leaf-blades oblanceolate, to 125 mm wide; sepals broadly acute and apiculate. Colombia, Panama, Costa Rica.....107. P. oblanceolata
- 36. Leaf-blades lanceolate or linear-lanceolate, 75-100 mm wide; sepals acuminate. Colombia.
- 37. Pedicels very stout; leaves all alike. 108. P. arcuata
- 37. Pedicels slender; leaves dimorphic. 109. P. fosteriana
- 34. Leaf-blades 30-55 mm wide.
- 38. Petiole entire; leaf-blade serrate toward apex. Guatemala.....194. P. macrochlamys
- 38. Petiole serrate; blade entire.
- 39. Flowers slenderly pedicellate.
- 40. Sepals oblong, obtuse and apiculate. Guatemala.....195. P. hemsleyana
- 40. Sepals narrowly triangular. Peru. 110. P. umbratilis
- 39. Flowers subsessile.
- 41. Leaf-blades dimorphic. Ecuador.....104. P. campii
- 41. Leaf-blades all alike.
- 42. Petals naked. Mexico.....196. P. imbricata
- 42. Petals appendaged. Guatemala, British Honduras. 197. P. petiolata
- 32. Leaves entire throughout.
- 43. Sepals 40 mm long, acuminate, membranaceous, floccose; floral bracts acuminate. Guatemala. 198. P. carioana
- 43. Sepals 18-30 mm long.
- 44. Sepals vestite; leaf-blades petiolate.
- 45. Leaf-blades 25 mm wide; sepals 19 mm long, the posterior alate-carinate. Ecuador. 111. P. hitchcockiana
- 45. Leaf-blades 50-63 mm wide; sepals 25-28 mm long.
- 46. Ovary almost wholly superior; petals naked, yellow. Ecuador.....112. P. sceptrigera
- 46. Ovary about 1/2 superior; petals appendaged, red. Peru.....113. P. asplundii
- 44. Sepals glabrous or nearly so.
- 47. Leaves all ending in a stout pungent black subulus; sepals narrowly triangular. Peru. 114. P. subulifera
- 47. Leaves not modified at apex.
- 48. Leaf-blades merely narrowed toward base, not petiolate.
- 49. Floral bracts ovate, acute, the upper ones 37 mm long; inflorescence racemose, lax at base, sepals obtuse. Costa Rica. 199. P. membranifolia
- 49. Floral bracts foliaceous, 60-80 mm long; inflorescence subcorymbose; sepals acuminate. "Guatemala". (Cultivation).

191. P. longebracteata

48. Leaf-blades distinctly petiolate.
 50. Floral bracts broadly acute or rounded and apiculate.
 51. Sepals 18 mm long; floral bracts bright purple.
 Venezuela.....115. P. altensteinii
 51. Sepals 24 mm long; floral bracts reddish yellow.
 Mexico.....200. P. densiflora
 50. Floral bracts acuminate.
 52. Petals naked; leaf-blades 45 mm wide. Central America or Mexico?.....201. P. ochroleuca
 52. Petals appendaged; leaf-blades 50-85 mm wide.
 Central America.....193. P. wendlandii

SUBKEY III

1. Petals bearing a scale on the inner side at base. Northern Andes and Brazil, except for P. heterophylla extending to Mexico and P. theae in Costa Rica.
 2. Scape and inflorescence very short. Mexico to Venezuela and Peru.....116. P. heterophylla
 2. Scape (unknown in P. crassa) and inflorescence elongate.
 3. Sepals 30-42 mm long; petals mostly yellow or white (color unknown in P. crassa and P. theae, sometimes red in P. megasepala).
 4. Posterior sepals alate.
 5. Inflorescence dense; plant with a long erect stem. Peru.....117. P. augustii
 5. Inflorescence lax; plant stemless. Colombia.....66. P. megasepala
 4. Posterior sepals not more than carinate.
 6. Floral bracts triangular or lanceolate, acuminate.
 7. Inflorescence cinereous-furfuraceous; scape-bracts much exceeding the internodes, the upper ones 5 cm long.
 Costa Rica.....202. P. theae
 7. Inflorescence glabrous; scape-bracts slightly shorter than the upper internodes. Ecuador.....118. P. aequatorialis
 6. Floral bracts broadly lanceolate or elliptic, acute or apiculate.
 8. Pedicels slender, 11 mm long, all but the lowest exceeding the floral bracts. Colombia.....67. P. trimorpha
 8. Pedicels 2 mm in diameter, 25 mm long, all shorter than the floral bracts; leaves unknown, species doubtfully belonging in this subkey. Bolivia.....119. P. crassa
 3. Sepals 12-25 mm long.
 9. Pedicels obconic, alate, very short. Colombia.....70. P. tolimensis
 9. Pedicels slenderly cylindric, not alate.
 10. Sepals emarginate, 12 mm long; pedicels 5 mm long. Peru.....53. P. rigida

- . 10. Sepals acute or acuminate, 14-25 mm long; pedicels 3-20 mm long.
 - 11. Leaf-blades all alike and deciduous, 10 mm wide; plant caulescent, branched; presence of petal-appendage uncertain. Colombia.....120. P. lignosa
 - 11. Leaf-blades dimorphic or at least the inner persistent.
 - 12. Pedicels 10-20 mm long. Brazil.
 - 13. Sepals alate, 16-20 mm long.....30. P. ensifolia
 - 13. Sepals scarinate, 14 mm long.....250. P. torresiana
 - 12. Pedicels 3-10 mm long. Northern Andes.
 - 14. Inflorescence sparsely flocculose, soon glabrous; leaf-blades 5-10 dm long, 5-12 mm wide. Colombia.
 - 121. P. stenophylla
 - 14. Inflorescence densely and persistently tomentose-lepidote; leaf-blades 3-4 dm long, 15-30 mm wide.
 - 15. Leaf-blades 30 mm wide, narrowly lanceolate, constricted at base. Ecuador.....122. P. pavonii
 - 15. Leaf-blades 15 mm wide, linear, scarcely constricted at base. Colombia to Peru.....123. P. pungens
- 1. Petals naked.
- 16. Pedicels not over 2 mm long.
- 17. Sepals 40-50 mm long.
- 18. Leaf-blades 35 mm wide; inflorescence corymbiform. Peru.
 - 124. P. billbergioides
- 18. Leaf-blades 15 mm wide; inflorescence slenderly sub-ellipsoid. Guatemala, Mexico. 203. P. saxicola
- 17. Sepals not over 30 mm long.
- 19. Inflorescence lax, at least toward the base.
- 20. Sepals oblong, rounded and apiculate, 7 mm long. Peru.
 - 125. P. melanopoda
- 20. Sepals lanceolate, acute or acuminate, 25-28 mm long.
- 21. Flowers subdistichous; sepals acute; inflorescence lax throughout. Mexico.....204. P. purpusii
- 21. Flowers many-ranked; sepals acuminate; inflorescence dense toward apex. Honduras, Salvador, Guatemala.
 - 205. P. calderonii
- 19. Inflorescence dense throughout. Mexico.
- 22. Blades of the lower scape-bracts equaling the inflorescence; floral bracts covered with a membrane of coalesced scales.....206. P. roseana
- 22. Blades of the scape-bracts much shorter than the inflorescence; indument of the floral bracts of distinct scales.
- 23. Scape-bracts lance-triangular, exposing much of the scape.....207. P. micheliania
- 23. Scape-bracts broadly ovate, ample, concealing the scape.
 - 208. P. cylindrostachya
- 16. Pedicels 4-30 mm long.
- 24. Petals 80-100 mm long.
- 25. Sepals densely vestite; flowers secund, spreading to reflexed. Mexico.

- . 26. Floral bracts about equaling the pedicels; sepals covered with appressed whitish scales.....209. P. leprosa
- 26. Floral bracts about 4 times as long as the pedicels; sepals ferruginous-lanate.....210. P. modesta
- 25. Sepals glabrous.
- 27. Sepals acuminate. Andes.
 - 28. Petals yellow; pedicels 5-12 mm long. Peru.
 - 29. Scape 8 mm in diameter; scape-bracts exceeding the internodes; flowers divergent, not secund.
 - 126. P. lopezii
 - 29. Scape 5 mm in diameter; scape-bracts shorter than the internodes; flowers spreading to decurved, secund.
 - 127. P. decurvata
 - 28. Petals brownish violet; pedicels 20 mm long. Ecuador.
 - 128. P. violascens
 - 27. Sepals acute or broadly acute. North America.
 - 30. Petals glabrous, red; scape-bracts entire. Guatemala.
 - 211. P. tuerckheimii
 - 30. Petals tomentose-lepidote at apex, white; lower scape-bracts serrate. Mexico.....212. P. hintoniana
 - 24. Petals 34-70 mm long.
 - 31. Floral bracts distinctly shorter than some of the pedicels
 - 32. Floral bracts broadly ovate.
 - 33. Pedicels to 23 mm long; flowers rather dense; petals 34 mm long, yellow or green. Bolivia..47. P. platystemon
 - 33. Pedicels not over 15 mm long; flowers lax; petals 70 mm long, reddish green. Mexico.....213. P. mooreana
 - 32. Floral bracts narrow, acuminate.
 - 34. Pedicels suberect, 10-15 mm long; axis flexuous. Mexico.
 - 214. P. flexuosa
 - 34. Pedicels spreading to reflexed.
 - 35. Pedicels not over 15 mm long; flowers secund. Mexico.
 - 215. P. palmeri
 - 35. Pedicels 20 mm long; flowers not secund. Peru.
 - 129. P. fractifolia
 - 31. Floral bracts equaling or exceeding the pedicels.
 - 36. Lower floral bracts subfoliaceous, much exceeding the flowers. Guatemala.....216. P. puberula
 - 36. Lower floral bracts vaginiform, shorter than the flowers.
 - 37. Lower floral bracts serrulate; sepals oblong, rounded and apiculate. Brazil.....31. P. limae
 - 37. Lower floral bracts entire.
 - 38. Leaves all entire or some very obscurely serrulate (P. tillandsioides).
 - 39. Inflorescence few-flowered, lax; scape-bracts longer or shorter than the internodes; posterior sepals subalate. Mexico.....217. P. tillandsioides
 - 39. Inflorescence many-flowered.
 - 40. Scape-bracts shorter than the upper internodes.
 - 41. Leaf-blades 2 mm wide, vestite with linear scales. Bolivia.....130. P. cardenasi

41. Leaf-blades 20 mm wide, densely lepidote beneath.
 Peru.....131. P. straminea
40. Scape-bracts all longer than the internodes.
 42. Petals red; floral bracts about equaling the
 pedicels. Brazil.....251. P. decidua
42. Petals white; lowest floral bracts exceeding the
 sepals. Mexico.....218. P. schiedeana
38. Leaves at least partially spinose-serrate, either on
 the spiniform blades or on the persistent bases of
 the foliaceous blades or both together.
43. Pedicels strongly biangulate or alate.
44. Sepals acuminate, 15-18 mm long; flowers strongly
 secund. Mexico.....219. P. pteropoda
44. Sepals obtuse or truncate, to 40 mm long. Ecuador.
 132. P. alata
43. Pedicels terete or faintly angled.
45. Scape very short, exceeded by the persistent leaf-
 bases; inflorescence elongate, sublax. Mexico.
 220. P. micropoda
45. Scape evident, much exceeding the leaf-bases.
46. Scape-bracts distinctly shorter than the upper
 internodes.
47. Inflorescence dense; floral bracts acute, equaling
 or slightly exceeding the pedicels; flowers not
 secund. Brazil.....252. P. glaziovii
47. Inflorescence lax; floral bracts acuminate, about
 twice the pedicels; flowers secund. Peru.
 133. P. scandens
46. Scape-bracts all longer than the internodes.
48. Leaves all alike; plant long-caulescent. Colombia.
 120. P. lignosa
48. Leaves dimorphic; plant generally stemless.
49. Posterior sepals alate. Mexico.
50. Sepals acuminate, glabrous; scape-bracts entire.
 221. P. karwinskyana
50. Sepals broadly acute or obtuse, lanate; lowest
 scape-bracts spinose.....222. P. militaris
49. Posterior sepals not more than carinate.
51. Petals yellow; floral bracts exceeding the 5 mm
 long pedicels. Ecuador.....134. P. lutescens
51. Petals red.
52. Scape-bracts foliaceous, equaling the leaves.
 Mexico.....223. P. foliacea
52. Scape-bracts short, not at all foliaceous.
53. Sepals densely and persistently lepidote.
 Mexico.....224. P. sordida
53. Sepals sparsely lepidote or apically
 barbellate, soon glabrous.
54. Pedicels 5-6 mm long. Andes.
55. Inflorescence dense; sepals 33 mm long;
 petals 65-70 mm long. Ecuador.
 135. P. erratica

- 55. Inflorescence lax; sepals 22 mm long; petals 40 mm long. Peru.....136. P. acicularis
- 54. Pedicels 8-15 mm long.
- 56. Plants caulescent, stoloniferous. Peru.
- 137. P. riparia
- 56. Plants stemless, without stolons. Mexico.
- 57. Flowers strongly spreading-secund; pedicels 15 mm long.....215. P. palmeri
- 57. Flowers polystichous, scarcely if at all secund, pedicels 8-10 mm long.
- 58. Floral bracts exceeding all but the uppermost sepals.....225. P. monticola
- 58. Floral bracts all much shorter than the sepals.....226. P. ringens

SUBKEY IV

- 1. Floral bracts shorter than the upper pedicels.
- 2. Sepals 42-60 mm long; pedicels 40-70 mm long; leaves entire. Colombia.
- 3. Sepals verrucose, obtuse.....50. P. verrucosa
- 3. Sepals even or nerved, acute or acuminate.
- 4. Leaf-blades 65-90 mm wide; pedicels 50-70 mm long.
- 138. P. spectabilis
- 4. Leaf-blades not over 30 mm wide; pedicels 50-60 mm long.
- 5. Sepals densely ferruginous-tomentose.....139. P. laxissima
- 5. Sepals glabrous.....140. P. longipes
- 2. Sepals not over 35 mm long; pedicels 5-40 mm long.
- 6. Sepals rounded or blunt or apiculate.
- 7. Pedicels only 5 mm long; leaf-blades to 95 mm wide. Ecuador.....141. P. elliptica
- 7. Pedicels 10-40 mm long; leaf-blades 16-70 mm wide.
- 8. Leaves spinose-serrate on the petioles or the bases of the blades.
- 9. Scape-bracts all exceeding the internodes; pedicels not over 10 mm long; leaf-blades 35 mm wide; sepals 12-18 mm long. Argentina.....62. P. chiriguana
- 9. Scape-bracts shorter than the upper internodes; pedicels to 25 mm long; leaf-blades 16-24 mm wide; sepals 20-30 mm long.
- 10. Floral bracts to 5 mm long; petals naked. Argentina.
- 59. P. oranensis
- 10. Floral bracts 10-20 mm long; petals appendaged. Peru, Bolivia, Brazil.....60. P. subpetiolata
- 8. Leaves wholly entire.
- 11. Leaf-blades 60-70 mm wide.
- 12. Pedicels 10-15 mm long; flowers spreading-secund. Mexico.....227. P. chiapensis
- 12. Pedicels to 40 mm long; flowers ascending, not secund. Colombia.....142. P. tumulicola
- 11. Leaf-blades 20-30 mm wide.

- . 13. Pedicels 10-20 mm long; ovary 2/3 superior; ovules caudate. Peru.....143. *P. biflora*
- 13. Pedicels 25-35 mm long; ovary 1/4 superior; seeds winged. Colombia.....38. *P. alborubra*
- 6. Sepals acute or acuminate.
- 14. Sepals uncinate-recurved; petals yellow or green, naked; flowers erect. Bolivia.....47. *P. platystemon*
- 14. Sepals straight or nearly so.
- 15. Leaf-blades 140 mm wide, broadly oblanceolate; flowers spreading to reflexed, many-ranked, dense; petals white. Colombia.....144. *P. multiflora*
- 15. Leaf-blades 17-70 mm wide.
- 16. Leaves at least partially serrate.
- 17. Ovary only 1/5 or 1/4 inferior; ovules or seeds caudate. Colombia.
- 18. Plant stemless; scape-bracts spinose-serrate.
- 18. Plant caulescent for over 1 m; scape-bracts entire.
- 17. Ovary 1/2 to 3/4 inferior; ovules or seeds alatae.
- 19. Larger leaf-blades evenly serrulate throughout; inflorescence ferruginous-lepidote. Ecuador.
- 14. *P. harlingii*
- 19. Larger leaf-blades serrate only toward apex.
- 20. Plant stemless; ovary 3/4 inferior. Colombia, French Guiana, Brazil.....15. *P. rubiginosa*
- 20. Plant caulescent; ovary 1/2 inferior. Venezuela.
- 16. *P. epiphytica*
- 16. Leaves all entire.
- 21. Sepals alate-carinate. Venezuela.....147. *P. nubigena*
- 21. Sepals ecarinate.
- 22. Leaf-blades not over 20 mm wide, linear-lanceolate, long-acuminate.
- 23. Pedicels reflexed, then curved-ascending; petals appendaged; leaves distichous. Venezuela.
- 23. Pedicels erect; petals naked; leaves not noticeably distichous. Brazil.....253. *P. lancifolia*
- 22. Leaf-blades 30-60 mm wide.
- 24. Pedicels 9 mm long; flowers strongly secund; leaf-blades linear-lanceolate, soon glabrous. Mexico.
- 24. Pedicels 15-25 mm long; flowers scarcely secund; leaf-blades densely brown-flocculose beneath. Colombia.....149. *P. bella*
- 1. Floral bracts all equaling or exceeding the pedicels.
- 25. Sepals 45-75 mm long; leaf-blades 25-200 mm wide.
- 26. Pedicels 20-60 mm long; leaves entire. Colombia.
- 27. Leaf-blades oblanceolate, 140 mm wide....150. *P. calophylla*
- 27. Leaf-blades linear-lanceolate, 25-50 mm wide.
- 28. Pedicels to 60 mm long.....139. *P. laxissima*
- 28. Pedicels not over 20 mm long.....65. *P. haughtii*

- . 26. Pedicels not more than 10 mm long; leaves serrate on the petioles.
- 29. Floral bracts 150 mm long, exceeding the sepals, the upper ones imbricate. Colombia, Ecuador.....105. P. elongata
- 29. Floral bracts 40-50 mm long, exceeded by the sepals. Colombia.
- 30. Sepals densely papillose at base; leaf-blade obovate, nearly 200 mm wide.....151. P. sylvestris
- 30. Sepals even or nerved; leaf-blade elliptic or lance-elliptic, 90-160 mm wide.....152. P. dolichopetala
- 25. Sepals 10-35 mm long; leaf-blades 16-180 mm wide.
- 31. Pedicels 4-8 mm long at most.
- 32. Sepals 10-12 mm long.
- 33. Scape-bracts densely imbricate; pedicels reflexed after anthesis. Ecuador.....153. P. reflexiflora
- 33. Scape-bracts shorter than the upper internodes.
- 34. Leaf-blades broadly elliptic, 95 mm wide. Ecuador.
- 34. Leaf-blades linear-lanceolate, about 40 mm wide. Colombia.....154. P. semaphora
- 32. Sepals 15-34 mm long.
- 35. Ovary 3/4 inferior; ovules or seeds alate; floral bracts deciduous. Colombia.....13. P. quesnellicoides
- 35. Ovary not more than 1/2 inferior.
- 36. Floral bracts much exceeding the lower flowers; leaves unknown, but probably not petiolate. Guatemala.
- 36. Floral bracts all exceeded by the flowers.
- 37. Leaves wholly entire.
- 38. Leaf-blades 30-40 mm wide; scape-bracts imbricate. Colombia.
- 39. Posterior sepal strongly carinate, 28 mm long.
- 39. Posterior and anterior sepals ecarinate, 20 mm long.
- 38. Leaf-blades 150-180 mm wide.
- 40. Flowers spreading at anthesis; leaf-blades densely white-lepidote beneath. Brazil....246. P. undulata
- 40. Flowers erect or divergent at anthesis; leaf-blades glabrous. Peru.....157. P. calatheoides
- 37. Leaves spinose-serrate on the petioles or on the bladeless sheaths (P. nobilis).
- 41. Scape-bracts mostly or all spinose-serrate.
- 42. Blades lanceolate, 80 mm wide. Colombia.
- 41. Scape-bracts entire.
- 42. Blades linear-lanceolate, 22 mm wide. Ecuador.
- 42. Blades linear-lanceolate, 22 mm wide. Ecuador.
- 43. Petioles entire; blades 23 mm wide. Ecuador.
- 43. Petioles serrate; blades 60-80 mm wide. Colombia.
- 44. Floral bracts broadly elliptic, apiculate.

160. P. adscendens

44. Floral bracts linear-lanceolate, acuminate.

161. P. sneidernii

31. Pedicels 9-30 mm long.

45. Ovary more than 1/2 inferior; ovules or seeds alate
(unknown in P. leprieurii).

46. Sepals to 35 mm long.

47. Sepals oblong, broadly acute; inflorescence dense.

Colombia.....17. P. cuatrecasana47. Sepals triangular-ovate, acuminate; inflorescence lax.
Ecuador.....14. P. harlingii

46. Sepals not more than 24 mm long.

48. Blades brown-lepidote beneath; sepals ecarinate.

Colombia, French Guiana, Brazil.....15. P. rubiginosa48. Blades whitish-lepidote beneath; sepals carinate.
French Guiana.....18. P. leprieurii45. Ovary not more than 1/2 inferior; ovules or seeds alate or
caudate.49. Leaves entire or minutely serrulate toward apex (P.
cyanopetala).

50. Blades 80-180 mm wide.

51. Scape-bracts much shorter than the internodes; blades
180 mm wide, densely white-lepidote beneath. Brazil.
246. P. undulata51. Scape-bracts exceeding the internodes; blades 80 mm
wide, subglabrous. Peru.....162. P. cyanopetala

50. Blades 20-50 mm wide.

52. Flowers all secund; sepals alate-carinate; plant 2 dm
high. Mexico.....229. P. secundiflora52. Flowers not secund; sepals not alate; plants 4-15 dm
high.53. Floral bracts coriaceous; petals yellowish white;
leaf-blades white-furfuraceous beneath. Mexico,
Guatemala, British Honduras.....190. P. recurvata53. Floral bracts thin; petals red or purple; leaf-blades
soon glabrous. Colombia.....163. P. brachysperma

49. Leaves serrate on the petioles or bases of the blades.

54. Leaf-blades 16-22 mm wide, weakly petiolate; sepals
obtuse; ovary only 1/6 inferior. Peru, Bolivia,
Brazil.....60. P. subpetiolata54. Leaf-blades 30-130 mm wide, distinctly petiolate; sepals
acute or acuminate, rarely rounded (sometimes in P.
sprucei).

55. Ovary about 1/2 inferior; ovules or seeds alate.

56. Inflorescence prostrate on the ground with the flowers
upwardly secund; leaf-blades entire; pedicels to 10
mm long. Colombia, Peru.....19. P. corallina56. Inflorescence erect, the flowers scarcely secund;
leaf-blades serrulate toward apex; pedicels 10-30 mm
long.

- . 57. Leaf-blades lanceolate or oblanceolate, 30-90 mm wide, soon glabrous; sepals oblong, broadly acute or rounded; pedicels 10-18 mm long. Colombia, Peru, Brazil.....20. P. sprucei
- . 57. Leaf-blades linear-lanceolate, 35 mm wide, densely white-lepidote beneath; sepals linear-lanceolate, acute; pedicels to 30 mm long. Venezuela.
 - 16. P. epiphytica
- . 55. Ovary only 1/4-1/5 inferior; ovules or seeds caudate.
- . 58. Sepals 12 mm long; leaf-blades 90 mm wide, covered beneath with a brown membrane of scales; scape-bracts entire. Colombia.....164. P. similis
- . 58. Sepals 20-25 mm long.
- . 59. Leaf-blades linear-lanceolate, attenuate, 40-70 mm wide; petals 65 mm long. Panama, Colombia.
 - 145. P. kalbreyeri
- . 59. Leaf-blades elliptic or obovate, abruptly acute, 130 mm wide; petals 100 mm long. Ecuador.
 - 165. P. palmoides

SUBKEY V

- 1. Ovary distinctly more than half inferior; ovules or seeds alate.
- 2. Petals lepidote, naked; pedicels 3-5 mm long. Colombia.
 - 21. P. turbinella
- 2. Petals glabrous.
- 3. Sepals 40 mm long; petals naked; flowers subsessile. Venezuela.....22. P. maguirei
- 3. Sepals 15-35 mm long; petals appendaged.
- 4. Flowers subsessile.
 - 5. Inflorescence lax; flowers spreading; ovary wholly inferior. Brazil.....23. P. anomala
 - 5. Inflorescence dense; flowers curved ascending; ovary 3/4 inferior. Colombia.....13. P. quesnellicoides
- 4. Flowers distinctly pedicellate for 5-25 mm.
- 6. Sepals 35 mm long; pedicels 25 mm long. Ecuador.
 - 14. P. harlingii
- 6. Sepals 15-27 mm long; pedicels 5-10 mm long.
- 7. Leaf-blades sublinear, 6-13 mm wide; sepals acute. Colombia, Venezuela, Guiana, Brazil..24. P. caricifolia
- 7. Leaf-blades linear-lanceolate, 20 mm wide; sepals rounded. Guiana.....25. P. incarnata
- 1. Ovary 1/2 inferior to almost completely superior.
- 8. Sepals 30-60 mm long.
- 9. Posterior sepals alate-carinate. Peru.
- 10. Inflorescence dense; flowers subsessile; sepals 30 mm long
 - 91. P. sandemanii
- 10. Inflorescence lax at base or throughout; flowers pedicellate for 10 mm; sepals 46 mm long.....166. P. eximia
- 9. Posterior (and anterior) sepals not more than angled-carinate.

- . 11. Ovules or seeds alate.
- 12. Floral bracts laciniate-spinose; sepals 60 mm long.
Bolivia, Argentina.....40. P. mirabilis
- 12. Floral bracts entire; sepals 33-40 mm long.
- 13. Petals red, appendaged; leaf-blades spinose-serrate only toward base. Colombia, Brazil.....26. P. uaupensis
- 13. Petals pale green, naked; leaf-blades spinose throughout Venezuela.....3. P. wurdackii
- 11. Ovules or seeds caudate.
- 14. Sepals obtuse, 20-30 mm long; leaves subpetiolate. Peru, Bolivia, Brazil.....60. P. subpetiolata
- 14. Sepals acute or acuminate.
- 15. Petals naked; inflorescence lax; flowers secund-spreading; leaves incompletely known. Mexico.
209. P. leprosa
- 15. Petals appendaged.
- 16. Flowers spreading or reflexed; floral bracts broadly lanceolate, acute, 35 mm long, exceeding the pedicels; axis 1 cm in diameter. Bolivia..119. P. crassa
- 16. Flowers erect or suberect.
- 17. Floral bracts to 18 mm long, equaling or exceeding the pedicels; inflorescence lax. Panama..230. P. carnea
- 17. Floral bracts to 70 mm long, shorter than to exceeding the sepals; inflorescence dense. Lesser Antilles.
242. P. albucifolia
- 8. Sepals 8-29 mm long.
- 18. Petals naked.
- 19. Sepals rounded, 8-12 mm long; petals green to pale yellow or white.
- 20. Inflorescence 5-flowered; flowers secund; sepals densely brown-lepidote. Peru.....35. P. viridis
- 20. Inflorescence densely many-flowered; flowers not secund; sepals glabrous. Colombia, Ecuador, Bolivia.
167. P. trianae
- 19. Sepals acute or acuminate, 13-27 mm long.
- 21. Floral bracts much exceeding the lower flowers; leaf-blades unknown but probably not persistent.
Guatemala.....216. P. puberula
- 21. Floral bracts all exceeded by the flowers.
- 22. Leaf-blades serrate throughout; ovules or seeds alate.
Venezuela.
- 23. Pedicels stout, 6 mm long; leaf-blades 90 mm wide.
1. P. agavifolia
- 23. Pedicels slender, 25 mm long; leaf-blades 12 mm wide.
27. P. ctenophylla
- 22. Leaf-blades only partially serrate (unknown in P. platystemon) or the ovules or seeds caudate (unknown in P. cuzcoensis) or usually both characters combined.
- 24. Petals yellow, green, or cream; floral bracts shorter than the pedicels.
- 25. Sepals uncinate-recurved; floral bracts 15-20 mm long.
Bolivia.....47. P. platystemon

- 25. Sepals straight; floral bracts to 12 mm long. Costa Rica.....77. P. halophila
- 24. Petals red or violet.
 - 26. Scape-bracts all exceeding the internodes; petals light brownish violet. Ecuador....128. P. violascens
 - 26. Scape-bracts shorter than the upper internodes.
 - 27. Leaf-blades oblong, acute; inflorescence glabrous; sepals 21 mm long. Ecuador....168. P. oblongifolia
 - 27. Leaf-blades lanceolate or linear-lanceolate, acuminate; inflorescence more or less vestite; sepals 13-17 mm long.
 - 28. Leaves trimorphic, some reduced to dark broad entire sheaths. Peru.....74. P. cuzcoensis
 - 28. Leaves dimorphic or all alike, none reduced to conspicuous sheaths. Colombia.....75. P. schultzei
- 18. Petals appendaged.
 - 29. Leaf-blades (or the spiniform ones if dimorphic) spinose-serrate throughout or entire only at the extreme apex (P. lanuginosa).
 - 30. Leaf-blades 90 mm wide; pedicels stout, 6 mm long; flowers recurved. Venezuela.....1. P. agavifolia
 - 30. Leaf-blades 4-32 mm wide.
 - 31. Pedicels 15-30 mm long; leaf-blades 10-32 mm wide.
 - 32. Ovules or seeds with annular appendages, alate.
 - 33. Sepals to 28 mm long; plant stemless; floral bracts about equaling the pedicels. Venezuela.
 - 28. P. filispina
 - 33. Sepals not over 15 mm long; plant with an erect 15 cm high stem; floral bracts much shorter than the upper pedicels. Mexico, Guatemala.....42. P. punicea
 - 32. Ovules or seeds with caudate appendages though the apical part sometimes broad (P. platyphylla).
 - 34. Petals pale yellow; sepals 15-20 mm long. Mexico.
 - 231. P. xanthocalyx
 - 34. Petals red or violet; sepals to 25 mm long.
 - 35. Floral bracts equaling or exceeding the pedicels; petals pale violet; leaf-blades dimorphic. Peru.
 - 169. P. lanuginosa
 - 35. Floral bracts much shorter than the upper pedicels; petals red; leaf-blades usually all alike. Jamaica.
 - 36. Leaf-blades 10-15 mm wide.....233. P. bromeliifolia
 - 36. Leaf-blades to 32 mm wide.....238. P. platyphylla
 - 31. Pedicels 3-11 mm long.
 - 37. Sepals subalate-carinate; pedicels 8 mm long; leaf-blades 8 mm wide. West Indies?.....243. P. glymiana
 - 37. Sepals not at all alate.
 - 38. Petals bright yellow to cream.
 - 39. Floral bracts much exceeding the pedicels; leaf-blades to 24 mm wide. Paraguay.
 - 170. P. paraguayensis
 - 39. Floral bracts shorter than the pedicels; leaf-blades 8-18 mm wide. Hispaniola.....232. P. samuelssonii

38. Petals red.

40. Leaves all alike.

41. Leaf-blades 10-20 mm wide; flowering plant 1-2 m high. Puerto Rico, Lesser Antilles. 234. *P. angustifolia*

41. Leaf-blades 4 mm wide; flowering plant 55 cm high. Dominican Republic..... 244. *P. elizabethae*

40. Leaves of the fertile rosette dimorphic. 235. *P. fuertesii*

29. Leaf-blades spinose only at extreme base or apex, or the sheaths only.

42. Petal-appendages a pair of small auricles. West Africa. 261. *P. feliciana*

42. Petal-appendage a single scale the width of the petal.

43. Scape-bracts equaling or exceeding all of the internodes

44. Lower floral bracts nearly equaling to exceeding the sepals; inflorescence dense. Lesser Antilles.

45. Floral bracts broadly ovate..... 241. *P. spicata*

45. Floral bracts lanceolate..... 242. *P. albucifolia*

44. Lower floral bracts much shorter than the sepals; inflorescence subdense to lax.

46. Petals pale yellow; pedicels 15-20 mm long. Mexico. 231. *P. xanthocalyx*

46. Petals red; pedicels 4-15 mm long.

47. Leaves dilated above the sheath, all alike. Venezuela..... 73. *P. moritziana*

47. Leaves not dilated above the sheath.

48. Leaf-blades covered beneath with a membrane of white scales. Puerto Rico (?), Lesser Antilles. 240. *P. latifolia*

48. Leaf-blades sparsely lepidote or glabrous beneath.

49. Inflorescence subdense, many-flowered. Colombia. 171. *P. macrobotrys*

49. Inflorescence lax, few-flowered. Venezuela. 172. *P. orchidifolia*

43. Scape-bracts distinctly shorter than the upper internodes.

50. Pedicels 15-30 mm long; sepals abruptly acute or rounded.

51. Sepals 13 mm long, oblong; leaf-blades sparsely lepidote toward base. Brazil..... 247. *P. egleri*

51. Sepals 20-30 mm long, narrowly triangular; leaf-blades densely white-lepidote beneath.

52. Ovary 1/2 superior; leaves all alike. Jamaica. 238. *P. platyphylla*

52. Ovary 5/6 superior; leaves dimorphic. Peru, Bolivia, Brazil..... 60. *P. subpetiolata*

50. Pedicels 4-10 mm long.

53. Leaf-blades not more than 11 mm wide.

54. Sepals 14-16 mm long. Cuba..... 239. *P. cubensis*

54. Sepals 24 mm long. Brazil..... 32. *P. platypetala*

53. Leaf-blades 15-30 mm wide.

- 55. Inflorescence densely white-tomentose; leaf-blades imperfectly known, probably not persistent. Peru.
- 55. Inflorescence sparsely flocculose to glabrous.
- 56. Leaf-blades lanceolate, 25-50 cm long, 15-25 mm wide
- 57. Floral bracts elliptic, much shorter than the pedicels; leaf-blades densely appressed-lepidote beneath. Venezuela.....173. P. fendleri
- 57. Floral bracts lanceolate, acuminate, from shorter to longer than the pedicels; leaf-blades sparsely lepidote to glabrous beneath. Colombia.
- 75. P. schultzei
- 56. Leaf-blades linear, 50-100 cm long, 15-20 mm wide.
- Dominican Republic.
- 58. Leaves all alike.....237. P. jimenezii
- 58. Leaves dimorphic.....245. P. domingensis

SUBKEY VI

- 1. Ovary distinctly more than 1/2 inferior.
- 2. Seeds or ovules alate; inflorescence minutely white-lepidote; ovary almost wholly inferior. Colombia, Venezuela, Guiana, Brazil.....24. P. caricifolia
- 2. Seeds or ovules caudate; inflorescence densely pale-flocculose or arachnoid; ovary not more than 2/3 inferior.
- 3. Sepals 18 mm long, carinate toward base. Ecuador.
- 174. P. unilateralis
- 3. Sepals 25 mm long, ecarinate. Brazil.....248. P. ulei
- 1. Ovary not more than 1/2 inferior.
- 4. Sepals 34-45 mm long; petals appendaged.
- 5. Pedicels 50-60 mm long; leaf-blades 30 mm wide. Colombia.
- 6. Sepals densely ferruginous-tomentose.....139. P. laxissima
- 6. Sepals glabrous.....140. P. longipes
- 5. Pedicels 6-25 mm long.
- 7. Axis of the inflorescence 1 cm in diameter; flowers spreading or reflexed. Bolivia.....120. P. crassa
- 7. Axis of the inflorescence relatively slender; flowers erect to divergent.
- 8. Petals greenish white; floral bracts broadly ovate; sepals transversely ridged at junction with ovary. Colombia.
- 41. P. costata
- 8. Petals red.
- 9. Floral bracts broadly ovate, slightly exceeding the pedicels; petals lepidote. Colombia.
- 175. P. lepidopetalon
- 9. Floral bracts lanceolate; petals glabrous.
- 10. Inflorescence dense toward apex; floral bracts to 70 mm long. Lesser Antilles.....242. P. albucifolia
- 10. Inflorescence lax throughout; floral bracts to 18 mm long. Panama.....230. P. carneae
- 4. Sepals 9-30 mm long or more (P. albucifolia).
- 11. Petals naked.

- . 12. Sepals rounded at apex, blunt or apiculate.
- 13. Leaf-blades 4-20 mm wide.
 - 14. Scape-bracts exceeding the internodes.
 - 15. Lower floral bracts serrulate; sepals oblong, 21 mm long. Brazil.....31. P. limae
 - 15. Lower floral bracts entire; sepals 9 mm long. French Guiana.....176. P. pusilla
 - 14. Scape-bracts distinctly shorter than the upper internodes.
 - 16. Floral bracts exceeding the 5 mm long pedicels. Peru.
 - 131. P. straminea
 - 16. Floral bracts much shorter than the 20 mm long pedicels. Venezuela.....29. P. juncoides
- 13. Leaf-blades 30-60 mm wide.
 - 17. Floral bracts exceeding the pedicels.
 - 18. Sepals broadly elliptic, 26 mm long; leaf-blades 60 mm wide. Guiana, Venezuela, Colombia, Central America.
 - 90. P. maidifolia
 - 18. Sepals oblong; leaf-blades not over 35 mm wide.
 - 19. Inflorescence dense, many-flowered; floral bracts very narrowly triangular. Venezuela.....177. P. tympani
 - 19. Inflorescence lax, few-flowered; floral bracts ovate. Colombia.....178. P. occidentalis
 - 17. Floral bracts at most equaling the 8-9 mm long pedicels.
 - 20. Flowers erect; floral bracts ligulate, shorter than the pedicels, flaccid. Peru, Venezuela.
 - 179. P. brevicalycina
 - 20. Flowers spreading; floral bracts narrowly triangular, about equaling the lower pedicels. Colombia.
 - 180. P. petraea
- 12. Sepals acute or acuminate.
 - 21. Floral bracts 4-8 cm long, exceeding the lower flowers.
 - 22. Pedicels slender, 10 mm long. Guatemala (?).
 - 191. P. longebracteata
 - 22. Pedicels stout, 3-5 mm long.
 - 23. Sepals ecarinate; leaf-blades unknown but probably not persistent. Guatemala.....216. P. puberula
 - 23. Sepals obtusely carinate. Brazil.
 - 254. P. encholiriodes
 - 21. Floral bracts all exceeded by the flowers.
 - 24. Sepals alate-carinate. Brazil.....255. P. carinata
 - 24. Sepals not at all alata.
 - 25. Floral bracts equaling or exceeding the pedicels.
 - 26. Petals sparsely floccose at apex; sepals 30 mm long; inflorescence densely lepidote. Mexico.
 - 209. P. leprosa
 - 26. Petals glabrous; sepals 22-28 mm long.
 - 27. Flowering shoot about equaling to exceeding the leaves. Brazil.....256. P. flammea
 - 27. Flowering shoot little more than half as high as the leaves. Colombia.....181. P. andreana
 - 25. Floral bracts all distinctly shorter than the pedicels.

- 28. Sepals uncinate-recurved; petals yellow or green.
Bolivia.....47. *P. platystemon*
- 28. Sepals straight. Brazil.
29. Petals regular, spirally recurving at anthesis.
30. Rhachis of the inflorescence glabrous; sepals 15-18
mm long; petals white to yellow...257. *P. albiflos*
- 30. Rhachis of the inflorescence furfuraceous; sepals
19-22 mm long; petals red.....258. *P. staminea*
- 29. Petals zygomorphic at least by position, not spirally
recurving at anthesis.
31. Base of the rosette not thickened; leaves not over
15 cm long.....259. *P. beycalema*
- 31. Base of the rosette bulbous-thickened; leaves
usually much more than 15 cm long..256. *P. flammea*
- 11. Petals appendaged.
- 32. Sepals rounded at apex, blunt or apiculate.
- 33. Scape-bracts equaling or exceeding the internodes.
- 34. Inflorescence dense, especially toward apex; floral
bracts broadly ovate. Lesser Antilles.
241. *P. spicata*
- 34. Inflorescence wholly lax; floral bracts linear-
lanceolate. Mexico.....231. *P. xanthocalyx*
- 33. Scape-bracts distinctly shorter than the upper internodes
- 35. Petals red.
- 36. Pedicels 20 mm long, much exceeding all the floral
bracts. Colombia.....182. *P. grubbiana*
- 36. Pedicels only 5 mm long, exceeding only the upper
floral bracts. Dominican Republic..237. *P. jimenezii*
- 35. Petals yellow or white.
- 37. Sepals 9 mm long, elliptic; ovary over 3/4 superior;
petal-appendage of 2 vertically attached auricles.
Venezuela (?).....183. *P. caulescens*
- 37. Sepals 15 mm long, linear; ovary ca. 1/2 superior.
Brazil.....33. *P. bradei*
- 32. Sepals acute or acuminate.
- 38. Scape-bracts equaling or exceeding the internodes.
- 39. Scape very short or none; inflorescence globose.
Mexico.....189. *P. tabuliformis*
- 39. Scape well developed.
- 40. Floral bracts 6-8 cm long, from nearly equaling to much
exceeding the narrowly triangular sepals.
- 41. Inflorescence subcorymbose, few-flowered.
Guatemala (?).....191. *P. longebracteata*
- 41. Inflorescence elongate, many-flowered. Lesser
Antilles.....242. *P. albucifolia*
- 40. Floral bracts smaller, mostly shorter than the sepals.
- 42. Petals red. Puerto Rico, Lesser Antilles.
240. *P. latifolia*
- 42. Petals yellow or white.
- 43. Ovary more than 3/4 superior; ovules or seeds
caudate. Brazil.....260. *P. suaveolens*
- 43. Ovary 1/2 superior. Mexico.

44. Ovules alate; scape-bracts equaling the upper internodes.....43. P. amblyosperma
 44. Ovules caudate; scape-bracts exceeding all the internodes.....231. P. xanthocalyx
38. Scape-bracts distinctly shorter than the upper internodes
 45. Sepals 16 mm long; inflorescence dense, many-flowered.
 Venezuela.....184. P. microcalyx
45. Sepals 23-30 mm long.
 46. Posterior sepals broadly alate-carinate; floral bracts broadly ovate; flowers subsessile. Peru.
 91. P. sandemanii
46. Posterior (and anterior) sepals not at all alate, at most obtusely carinate.
 47. Floral bracts exceeding the pedicels, narrowly triangular or linear-lanceolate, acuminate.
 48. Ovules subalate; ovary more than 1/2 superior.
 Brazil.....32. P. platypetala
48. Ovules long-caudate; ovary more than 4/5 superior; leaves doubtfully persistent. Ecuador.
 122. P. pavonii
47. Floral bracts shorter than the pedicels.
 49. Petals red; floral bracts ovate, acuminate. Mexico.
 228. P. oaxacana
49. Petals white; floral bracts elliptic, acute.
 Colombia.....185. P. johannis

Subgenus PEPINIA
 (including subgenus Schweideleria)

Amazon-Orinoco Basin

1. P. AGAVIFOLIA L. B. Smith, Mem. New York Bot. Gard. 9:287, fig. 18. 1957. Venezuela.
2. P. NUDA Baker, Journ. Bot. 19:269. 1881. British Guiana, Surinam.
3. P. WURDACKII L. B. Smith, Mem. New York Bot. Gard. 10, no. 2:17, fig. 4. 1960. Venezuela.
4. P. MITUENSIS L. B. Smith in R. E. Schultes, Pl. Austro-Am. XI, Rhodora 65:7, fig. 7. 1963. Colombia.
5. P. KUNHARDTIANA L. B. Smith, Mem. New York Bot. Gard. 9: 289, fig. 21. 1957. Venezuela.
6. P. BULBOSA L. B. Smith, Phytologia 5:178, pl. 1, figs. 7-10. 1955. Venezuela, Colombia.
7. P. HELIOPHILA L. B. Smith, Caldasia [1], no. 5:8, fig. 1942. Colombia.
8. P. ARMATA Maury, Journ. de Bot. 3:270, fig. 13. 1889. P. cinerea L. B. Smith, Fieldiana Bot. 28, no. 1:149, fig. 23 d-f. 1951. Venezuela.
9. P. BREWERI L. B. Smith, Phytologia 9:246, pl. 2, figs. 1, 2. 1963. Venezuela.
10. P. GEYSKESII L. B. Smith, Act. Bot. Neerlandica 5:90, fig.

1. 1956. Surinam.
 11. P. PRUINOSA H.B.K. Nov. Gen. & Sp. 1:295. 1816. Venezuela.
 12. P. PATENTIFLORA L. B. Smith, Contr. Gray Herb. 127:18, pl. 1, fig. 4. 1939.
 - Var. a. PATENTIFLORA. Plant 5-10 dm high; leaf-blades scarcely or not at all narrowed toward base, 3-15 mm wide, serrate for most of their length; sepals 15-20 mm long. Venezuela, Brazil.
 - Var. b. SUBINTEGRA L. B. Smith, Bot. Mus. Leafl. Harvard 17: 68. 1955. Leaf-blades distinctly narrowed toward base, to 20 mm wide, serrate only at extreme base; sepals 13-18 mm long. Colombia.
 - Var. c. MACRANTHA L. B. Smith, Bot. Mus. Leafl. Harvard 17:68. 1955. Plant 2 m high; leaf-blades distinctly narrowed toward base, to 25 mm wide, serrate only at extreme base; sepals 25 mm long. Colombia.
 - Var. d. ARMATA L. B. Smith, Mem. New York Bot. Gard. 10, no. 5:37. 1964. Flowering 2 m high; leaves 14 dm long; blades 4 cm wide, slightly narrowed toward base, serrulate throughout; sepals to 27 mm long. Venezuela.
 13. P. QUESNELIOIDES L. B. Smith, Contr. U. S. Nat. Herb. 29: 313, fig. 33. 1949. Colombia.
 14. P. HARLINGII L. B. Smith, Phytologia 8:11, pl. 1, figs. 18-20. 1961. Ecuador.
 15. P. RUBIGINOSA (Brongn. ex E. Morr.) Baker, Handb. Bromel. 116. 1889.
 - Var. a. RUBIGINOSA. Melinonia rubiginosa Brongn. ex E. Morr. Cat. Bromel. Jard. Liége 11. 1873. Leaves serrulate, at least toward apex; floral bracts exceeding the pedicels. Colombia, French Guiana.
 - Var. b. AMAZONICA (Baker) L. B. Smith, Phytologia 7:109. 1960. P. amazonica Baker, Handb. Bromel. 117. 1889. Leaves serrulate, at least toward apex; floral bracts shorter than the pedicels. Brazil.
 - Var. c. INTEGRA L. B. Smith, Phytologia 7:110. 1960. Leaves entire; floral bracts exceeding the lower pedicels, shorter than the upper. Brazil.
 16. P. EPIPHYTICA L. B. Smith, Mem. New York Bot. Gard. 9:289, fig. 20. 1957. Venezuela.
 17. P. CUATRECASANA L. B. Smith, Caldasia [1], no. 4:16, fig. 1942. Colombia.
 18. P. (subgenus ?) LEPRIEURII Baker, Handb. Bromel. 117. 1889. French Guiana.
 19. P. CORALLINA Linden & André, Belg. Hortic. 23:112. 1873.
 - Var. a. CORALLINA. Leaves to 10 cm wide; inflorescence coral-red. Colombia, Peru.
 - Var. b. VIRIDIS L. B. Smith, Bot. Mus. Leafl. Harvard 17:67. 1955. Leaves only 3 cm wide; inflorescence yellow-green. Colombia.
 20. P. SPRUCEI Baker, Journ. Bot. 19:303. 1881. Colombia, Peru, Brazil.
 21. P. TURBINELLA L. B. Smith, Caldasia [1], no. 4:17, fig. 5. 1942. Colombia.

22. P. MAGUIREI L. B. Smith, Mem. New York Bot. Gard. 10, no. 2:17, fig. 5. 1960. Venezuela.
 23. P. ANOMALA Hoehne, Comm. Linh. Telegr. Estrat. Matto Grosso Publ. [47], Annexo 5, Bot. pt. 9:9, pl. 161. 1919. Brazil.
 24. P. CARICIFOLIA Mart. ex Schult. f. in R. & S. Syst. 7, pt. 2:1242. 1830.

Var. a. CARICIFOLIA. P. kegeliana Schlecht. Linnaea 24:664. 1851. P. pauciflora Baker, Journ. Bot. 19:230. 1881. P. sub-juncta Baker, Handb. Bromel. 116. 1889. Floral bracts exceeding the lower pedicels, sometimes equaling the ovaries; sepals 15 mm long, green. Guiana, Venezuela, Colombia, Brazil.

Var. b. MACRANTHA L. B. Smith, Mem. New York Bot. Gard. 10, no. 5:37. 1964. Floral bracts equaling the lowest pedicels, shorter than the remainder; sepals acute, 27 mm long, orange-red. Venezuela.

25. P. INCARNATA (Brongn. ex E. Morr.) Baker, Handb. Bromel. 116. 1889. Melinonia incarnata Brongn. ex E. Morr. Cat. Bromel. Jard. Liège for 1873:11. 1873. Pepinia incarnata E. Morr. ex Baker, Handb. Bromel. 116. 1889, nomen. Pitcairnia semijuncta Baker, Handb. Bromel. 117. 1889. Guiana.

26. P. UAUPENSIS Baker, Handb. Bromel. 93. 1889. Colombia, Brazil.

27. P. CTENOPHYLLA L. B. Smith in Gleason & Killip, Brittonia 3:161, fig. e-i. 1939. Venezuela.

28. P. FILISPINA L. B. Smith, Mem. New York Bot. Gard. 9:289, fig. 19. 1957. Venezuela.

29. P. JUNCOIDES L. B. Smith, Contr. Gray Herb. 161:33, pl. 4, figs. 2, 3. 1946. Venezuela.

Planalto of Brazil

30. P. ENSIFOLIA Mez in Mart. Fl. Bras. 3, pt. 3:436, pl. 82. 1894.

31. P. LIMAE L. B. Smith, Phytologia 7:254, pl. 1, figs. 9, 10. 1960.

32. P. PLATYPETALA Mez in Mart. Fl. Bras. 3, pt. 3:438. 1894.

33. P. BRADEI Markgraf, Notizblatt 15:215. 1940.

Andean South America

34. P. FERRUGINEA R. & P. Fl. Peruv. 3:36. 1802. Pourretia ferruginea Spreng. Syst. Veg. 2:23. 1825. Pitcairnia asterotricha Poepp. & Endl. Nov. Gen. 2:42, pl. 158. 1838. Puya grandiflora Hook. Bot. Mag. 87:pl. 5234. 1861. Pitcairnia consimilis Baker, Journ. Bot. 19:226, 266. 1881. Puya echinotricha André, Rev. Hortic. 60:565. 1888. Pitcairnia echinotricha Baker, Handb. Bromel. 119. 1889. P. weberbaueri Mez, Bull. Herb. Boiss. ser. 2, 4:627. 1904. P. cotahuasiana Harms, Notizblatt 10:788. 1929. P. latibracteata Harms, l. c. P. herrerae Harms, op. c. 789. P. imperialis Harms, op. c. 790. P. laresiana Harms, op. c. 11:58. 1930. Ecuador, Peru, Bolivia.

35. P. VIRIDIS Mez, Fedde Rep. Spec. Nov. 16:8. 1919. Peru.

36. *P. KILLIPIANA* L. B. Smith, Contr. U. S. Nat. Herb. 29:308, fig. 29. 1949. Colombia.
37. *P. NANA* (Wittm.) L. B. Smith, Phytologia 7:5. 1959. *Puya nana* Wittm. Mededeel Rijks Herb. 29:85. 1916. Bolivia.
38. *P. ALBORUBRA* Baker, Handb. Bromel. 102. 1889. Colombia.
39. *P. PECTINATA* L. B. Smith, Contr. Gray Herb. 98:9, pl. 3, figs. 6, 7. 1932. Colombia.
40. *P. MIRABILIS* Mez, Fedde Rep. Nov. Spec. 3:6. 1906.
- Var. a. *MIRABILIS*. Leaf-blades 60 cm long, 15 mm wide, subentire to spinose; flowering shoot to 15 dm high; inflorescence 30 cm long. Bolivia, Argentina.
- Var. b. *TUCUMANA* Castellanos, Anal. Mus. Nac. Hist. Nat. Buenos Aires 36:53, pl. 5. 1929. Leaf-blades 22 cm long, 8 mm wide, strongly spinose; flowering shoot 3-4 dm high; inflorescence 8-10 cm long. Argentina.
41. *P. COSTATA* L. B. Smith, Caldasia 5:7, fig. 1948. Colombia.

Mexico, Central America

42. *P. PUNICEA* Scheidw. Bull. Acad. Brux. 9, pt. 1:25. 1842. *P. jacksonii* Hook. Bot. Mag. 76:pl. 4540. 1850. *Pepinia punicea* Brongn. ex André, Ill. Hortic. 17:33. 1870. *Lamproconus jacksonii* Lem. ex Hemsl. Biol. Centr. Am. 3:316. 1884. Mexico, Guatemala.
43. *P. AMBLYOSPERMA* L. B. Smith, Contr. Gray Herb. 117:23, pl. 2, figs. 4-7. 1937. Mexico.

Subgenus PITCAIRNIA

Andean South America

44. *P. ECHINATA* Hook. Bot. Mag. 79:pl. 4709. 1853. Colombia.
- Var. a. *ECHINATA*. Sepals and base of ovary densely and coarsely echinate with processes 1-2 mm long; petals white.
- Var. b. *SUBLAEVIS* L. B. Smith, Contr. U. S. Nat. Herb. 29:304. 1949. Sepals and base of ovary minutely and sparsely stellate, nearly even.
- Var. c. *VALLENSIS* L. B. Smith, Phytologia 4:378. 1953. Petals rose-orange; stamens exserted.
45. *P. TUBERCULATA* L. B. Smith, Fieldiana Bot. 28, no. 1:149, fig. 22 c. 1951. Venezuela.
46. *P. PUVOIDES* L. B. Smith, Field Mus. Bot. 11:147. 1936; Contr. Gray Herb. 114:7, pl. 1, figs. 4, 5. 1936. Peru.
47. *P. PLATYSTEMON* Mez in DC. Mon. Phan. 9:421. 1896. Bolivia.
48. *P. PULVERULENTA* R. & P. Fl. Peruv. 3:36, pl. 259. 1802. *Orthopetalum pulverulentum* Beer, Brom. 71. 1857. Peru.
49. *P. PANICULATA* (R. & P.) R. & P. Fl. Peruv. 3:36, pl. 260. 1802. *Pourretia paniculata* R. & P. Syst. Veg. 1:81. 1798. *Pitcairnia longifolia* Hook. Bot. Mag. 80:pl. 4775. 1854. *P. excelsa* E. Morr. Belg. Hortic. 25:381. 1875. *P. fruticetorum* Mez, Fedde Rep. Nov. Spec. 3:4. 1906. *P. biattenuata* Rusby, Bull. New York Bot. Gard. 4:457. 1907. Peru, Bolivia.
50. *P. (subgenus ?) VERRUCOSA* L. B. Smith, Phytologia 4:380,

- pl. 2, figs. 1-4. 1953. Colombia.
51. P. RUIZIANA Mez in DC. Mon. Phan. 9:420. 1896. Peru.
 52. P. DENDROIDEA André, Enum. Bromel. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
 53. P. RIGIDA Mez, Bull. Herb. Boiss. ser. 2, 4:625. 1904. Peru.
 54. P. (subgenus ?) LECHLERI Baker, Journ. Bot. 19:269. 1881. Peru.
 55. P. INERMIS (Meyer) Meyer ex Schult. f. in R. & S. Syst. Veg. 7:1238. 1830. Peru.
 - Var. a. INERMIS. Pourretia inermis Meyer in Presl, Rel. Henk. 1:123, pl. 23. 1827. Orthopetalum inerme Beer, Bromel. 72. 1857. Flowering to 5 dm high; leaves serrulate above the base; petals scarlet, appendaged.
 - Var. b. FLAVA L. B. Smith, Phytologia 5:46. 1954. Flowering to 8 dm high; leaves serrulate below the abscission line; petals yellow, naked.
 56. P. ARENICOLA L. B. Smith, Contr. U. S. Nat. Herb. 29:299, fig. 21. 1949. Colombia.
 57. P. COMMIXTA L. B. Smith, Contr. U. S. Nat. Herb. 29:303. 1949. P. orgyalis sensu André, Énum. Bromél. 4. Dec. 13, 1888, nomen; Rev. Hortic. 60:564. Dec. 16, 1888, nomen; André ex Mez in DC. Mon. Phan. 9:412. 1896, non Baker, 1881. Colombia, Ecuador.
 58. P. LEHMANNII Baker, Journ. Bot. 19:273. 1881. P. orgyalis Baker, l. c. P. auriculata Mez, Bull. Herb. Boiss. ser. 2, 3: 134. 1903. Colombia, Ecuador.
 59. P. (subgenus ?) ORANENSIS L. B. Smith, Phytologia 8:228, pl. 2, figs. 15-17. 1962. Argentina.
 60. P. SUBPETIOLATA Baker, Journ. Bot. 19:267. 1881. P. latifolia sensu Baker, Handb. Bromel. 92. 1889, in part, as to Burchell 8116. P. caldasiana Baker, op. c. 100. P. burchellii Mez Mart. Fl. Bras. 3, pt. 3:436. 1894. P. sessiliflora Rusby, Bull. New York Bot. Gard. 4:457. 1907. Peru, Bolivia, Brazil.
 61. P. TRUNCATA L. B. Smith, Contr. Gray Herb. 98:10, pl. 3, figs. 8, 9. 1932. Peru.
 62. P. CHIRIGUANA Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 36:52, pl. 4. 1929. Argentina.
 63. P. TARAPOTENSIS Baker, Handb. Bromel. 102. 1889. Peru.
 64. P. (subgenus ?) CHOCOENSIS L. B. Smith, Contr. U. S. Nat. Herb. 29:302, fig. 24. 1949. Colombia.
 65. P. (subgenus ?) HAUGHTII L. B. Smith, Contr. U. S. Nat. Herb. 29:307, fig. 28. 1949. Colombia.
 66. P. MEGASEPALA Baker, Journ. Bot. 19:229. 1881. P. araneosa Baker, op. c. 231. P. goudotiana André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. P. camp托calyx André, l. c. P. camp托calyx var. lutea, var. robusta, l. c. Colombia.
 67. P. TRIMORPHA L. B. Smith, Phytologia 5:179, pl. 2, figs. 1-3. 1955. Colombia.
 68. P. POORTMANII André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
 69. P. KNIPHOFIOIDES L. B. Smith, Proc. Am. Acad. Sci. 70:153,

pl. 1, fig. 18, 1935. Colombia.

70. *P. TOLIMENSIS* L. B. Smith, Caldasia [1], no. 4:17, fig. 4
1942. Colombia.

71. *P. INTEGRIFOLIA* Ker-Gawl. Bot. Mag. 36:pl. 1462. 1812. *P. graminifolia* hort. ex Schrad. Comm. Blumenb. 46. 1827. *P. decora* A. Dietr. Allg. Gartenzzeit. 15:353. 1847. *P. alta* Hassk. Verh. Naturk. Ver. Ned. Ind. 1, pt. 7:5. 1856. *P. graminea* Beer, Bro-
mel. 198. 1857, nomen. ? *P. integrifolia* var. *major* Regel, Ind.
Sem. Hort. Petrop. for 1869:24. 1869. *P. tenuis* Mez in DC. Mon.
Phan. 9:421. 1896. *P. hartmannii* Mez, Fedde Rep. Spec. Nov. 16:
8. 1919. Venezuela, Trinidad.

72. *P. (subgenus?) CASSAPENSIS* Mez, Fedde Rep. Spec. Nov. 16:
8. 1919. Peru.

73. *P. MORITZIANA* K. Koch & Bouché, Ind. Sem. Hort. Berol. for
1856, App.:4. 1857. *P. klotzschiana* Baker, Handb. Bromel. 106.
1889. *P. moritziana* Kl. ex Baker, l. c., nomen. Venezuela.

74. *P. (subgenus?) CUZCOENSIS* L. B. Smith, Contr. Gray Herb.
98:9, pl. 3, figs. 3-5. 1932. Peru.

75. *P. SCHULTZII* Harms, Notizblatt 10:212. 1928. Colombia.

76. *P. VARGASIANA* L. B. Smith, sp. nov. *P. cuzcoensis* L. B.
Smith in systema mea proxima sed foliorum laminis majoribus deci-
duis, bracteis primariis quam ramis multo brevioribus differt.

Caulescent, incomplete and immature but undoubtedly flowering
1 m or higher; stem erect, 15 cm high; leaf-sheaths densely im-
bricate, broadly ovate, ca. 3 cm long, entire or pectinate-
serrate only near apex, dark castaneous, lustrous, covered with
appressed whitish scales toward base; blades polymorphic, some
greatly reduced and spiniform, castaneous, either entire or pec-
tinate-serrate, others foliaceous and deciduous, either wholly
entire or serrate below the line of abscission, linear-lanceo-
late, acuminate, slightly narrowed toward base, 25 cm long, 15 mm
wide, glabrous except for marginal scales near base; scape erect,
ca. 8 mm in diameter; lower scape-bracts densely imbricate, sub-
foliaceous with deciduous blades; inflorescence laxly compound,
sparsely white-flocculose; primary bracts narrowly triangular, 3
cm long; lateral branches to 18 cm long including the naked 7 cm
sterile base, laxly flowered, terminal branch 27 cm long; floral
bracts to 25 mm long, much exceeding the pedicels; flowers se-
cund, spreading to recurved at anthesis, red; pedicels 8 mm long;
sepals lance-oblong, subacute, 20 mm long, scarinate or nearly
so, soon glabrous; petals naked; ovary over 1/2 superior; ovules
caudate. Pl. I, fig. 4: Flower x 1/2; fig. 5: Sepal x 1.

PERU: Cuzco: Prov. Paucartambo: Rocky open places, K. 134,
alt. 2000 m, July 20, 1963, C. Vargas C. no. 14716 (US, type).

77. *P. HALOPHILA* L. B. Smith, sp. nov. *P. platystemon* Mez
in systema mea proxima sed bracteis florigeris anguste triang-
laribus, petalis lacteis differt.

Stemless (?), flowering 75 cm high; leaves apparently all per-
sistent; sheaths broadly ovate, the outer 2 cm long, entire ex-
cept near apex, dark castaneous, at first covered toward apex
with appressed cinereous scales; blades polymorphic, some reduced
to spinose-serrate spines, some much reduced but foliaceous and

entire, the central ones foliaceous, linear, acuminate, scarcely narrowed at base, about equaling the inflorescence, 12 mm wide, entire, covered beneath with pale subappressed scales, glabrous above; scape slender, erect, pale-lepidote; scape-bracts apparently exceeding the internodes (the highest damaged and uncertain), linear-triangular; inflorescence 34 cm long with a single short lateral branch, lax, pale-flocculose; primary bract linear, attenuate, about equaling the naked sterile base of the branch; floral bracts linear-triangular, to 15 mm long; flowers divergent not secund; pedicels straight, slender, to 25 mm long; sepals linear, acute, 23 mm long, scarcely carinate, soon glabrous; petals naked, over 5 cm long, cream (! Foster); ovary over 2/3 superior; ovules short-caudate. Pl. I, fig. 6: Flower x 1/2; fig. 7: Sepal x 1.

COSTA RICA: Puntarenas; Base of cliffs at high-tide level, Quepos, December 12, 1948, M. B. Foster no. 2669 (US, type).

78. P. EXSERTA L. B. Smith, Caldasia 5:10, fig. 1948.
Colombia.

79. P. DEVANSAYANA André ex Baker, Handb. Bromel. 93. 1889.
P. roezlii André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888, non E. Morr. 1885. Ecuador.

80. P. DIFFUSA L. B. Smith, Caldasia 5:8, fig. 1948. Colombia.

81. P. (subgenus ?) MULTIRAMOSA Mez in DC. Mon. Phan. 9:419. 1896. Bolivia.

82. P. ODONTOPODA Baker, Handb. Bromel. 93. 1889. Bolivia.

83. P. DIVARICATA Wittm. Mededel. Rijks Herb. 29:81. 1916.
Bolivia.

84. P. (subgenus ?) APHELANDRIFLORA Lem. Ill. Hortic. 16:
Misc. 90. 1869. Pepinia aphelandriflora André, Ill. Hortic. 17:
32, pl. 5. 1870. Peru, Panama.

85. P. CAPITATA L. B. Smith, Contr. U. S. Nat. Herb. 29:301,
fig. 23. 1949. Colombia.

86. P. (subgenus ?) GUZMANIOIDES L. B. Smith, Contr. U. S.
Nat. Herb. 29:306, fig. 27. 1949. Colombia.

87. P. ARCHERI L. B. Smith, Contr. Gray Herb. 104:79, pl. 3,
figs. 20, 21. 1934. Colombia.

88. P. (subgenus ?) POEPPIGIANA Mez in Mart. Fl. Bras. 3, pt.
3:461. 1894. Peru.

89. P. MACRANTHERA André, Énum. Bromél. 5. Dec. 13, 1888; Rev.
Hortic. 60:565. Dec. 16, 1888; emend. L. B. Smith, Contr. U. S.
Nat. Herb. 29:310. 1949. Colombia.

90. P. MAIDIFOLIA (C. Morr.) Dcne. ex Planch. Fl. Serres 9:
151, pl. 915. 1854. Puya maidifolia C. Morr. Ann. Soc. Agr. Bot.
Gand 5:453, pl. 1849. P. funkiana Linden, Cat. 5:2. 1850. Pit-
cairnia funkiana A. Dietr. Allgem. Gartenzeit. 19:337. 1851. P.
maydifolia Dcne. ex Naudin, Rev. Hortic. ser. 3, 5:347. 1851. P.
macrocalyx Hook. Bot. Mag. 79:pl. 4705. 1853. ? P. polyanthoides
Brongn. ex Dcne. Rev. Hortic. 27:244. 1855 (! Mez). P. zeifolia
Koch & Sello ex K. Koch, Ind. Sem. Hort. Berol. for 1854: App. 11
1855. P. maizaifolia hort. ex Beer, Bromel. 46. 1857, nomen.
Phlomostachys funkiana Beer, Bromel. 47. 1857. Neumannia maidi-
folia K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857.

Pitcairnia funkii Wawra, It. Princ. S. Coburgi 1:174. 1883. Lamproconus maidifolius Lem. ex Baker, Handb. Bromel. 109. 1889, nomen. Vriesia tricolor hort. ex Baker, l. c., nomen. Pitcairnia eerstediana Mez in DC. Mon. Phan. 9:448. 1896. Guiana, Venezuela, Colombia, Central America.

91. P. SANDEMANII L. B. Smith, Contr. U. S. Nat. Herb. 29:531, fig. 87. 1954. Peru.

92. P. (subgenus ?) MARITIMA L. B. Smith, Contr. U. S. Nat. Herb. 29:311, fig. 31. 1949. Colombia.

93. P. (subgenus ?) FERREYRAE L. B. Smith, Phytologia 4:215, pl. 1, figs. 10-12. 1953. Peru.

94. P. SCEPTRIFORMIS Mez, Bull. Herb. Boiss. ser. 2, 4:628. 1904; Ule, Verhandl. Bot. Ver. Brandenb. 48:139. 1907. Peru.

95. P. BRITTONIANA Mez in DC. Mon. Phan. 9:451. 1896. P. weberiana Mez, Bull. Herb. Boiss. ser. 2, 4:622. 1904. P. flaviflora Standley, Journ. Wash. Acad. Sci. 17:247. 1927. Costa Rica to British Guiana and Bolivia.

96. P. NIGRA (Carr.) André, Énum. Bromél. 5. Dec. 13, 1888, incorrectly attributed to Carr.; Rev. Hortic. 60:565. Dec. 16, 1888. Neumannnia nigra Carr. Rev. Hortic. 53:390, pl. 1881. Pitcairnia gravisiana Wittm. Bot. Jahrb. 11:56. 1889. Colombia, Ecuador.

97. P. PULCHELLA Mez in DC. Mon. Phan. 9:459. 1896. Ecuador.

98. P. BRONGNIARTIANA André, Énum. Bromél. 5. Dec. 13, 1888; Rev. Hortic. 60:565. Dec. 16, 1888.

Var. a. BRONGNIARTIANA. P. klabochorum hort. ex Baker, Handb. Bromel. 107. 1889, nomen. P. klabochiana C. Morr. ex Mez in DC. Mon. Phan. 9:414. 1896. Leaf-blades narrowly lanceolate, acuminate, 80 mm wide. Colombia.

Var. b. LATIFOLIA L. B. Smith, Phytologia 6:438. 1959. Leaf-blades oblanceolate, broadly acute and apiculate, 135-145 mm wide. Ecuador.

99. P. BRUNNESCENS L. B. Smith, Contr. U. S. Nat. Herb. 29:300, fig. 22. 1949. Colombia, Ecuador.

100. P. BARRIGAE L. B. Smith, Caldasia 5:5, fig. 1948. Colombia.

101. P. (subgenus ?) CLAVATA L. B. Smith, Phytologia 9:248, pl. 2, figs. 9, 10. 1963. Peru.

102. P. SQUARROSA L. B. Smith, Caldasia 5:11, fig. 1948. Colombia.

Var. a. SQUARROSA. Floral bracts castaneous with acuminate green apices; petals white.

Var. b. COLORATA L. B. Smith, Caldasia 5:12. 1948. Floral bracts bright red; petals dark purple.

Var. c. AURANTIACA L. B. Smith, Phytologia 5:396. 1956. Inflorescence 10 cm long; floral bracts with short broadly acute apices; sepals 25 mm long; petals orange.

103. P. ATRORUBENS (Beer) Baker, Journ. Bot. 19:307. 1881. Phlomostachys atrorubens Beer, Bromel. 48. 1857. Puya warszewiczii H. Wendl. ex Hook. Bot. Mag. 87:pl. 5225. 1861. Pitcairnia lamarcheana E. Morr. ex Baker, Handb. Bromel. 111. 1889. P. lindeni Baker, op. c. 112. Neumannnia lindeni E. Morr. ex Baker,

- l. c., nomen. N. atrorubens K. Koch ex Baker, l. c., nomen.
Lamproconus warszewiczii Lem. ex Baker, l. c., nomen. P. atro-
rubens /S. lamarcheana Mez in DC. Mon. Phan. 9:457. 1896.
 Colombia, Panama, Costa Rica, Mexico (?).
104. P. CAMPII L. B. Smith, Mem. New York Bot. Gard. 8:28,
 fig. 1, j-k. 1952. Ecuador.
105. P. ELONGATA L. B. Smith, Contr. U. S. Nat. Herb. 29:304,
 fig. 25. 1949. Colombia, Ecuador.
106. P. (subgenus ?) BAKERI (André) André ex Mez in DC. Mon.
 Phan. 9:460. 1896; emend. L. B. Smith, Caldasia 5:4, fig. 1948.
Quesnelia bakeri André, Énum. Bromél. 4. Dec. 13, 1888; Rev.
 Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
107. P. (subgenus ?) OBLANCEOLATA L. B. Smith, Contr. Gray
 Herb. 117:26, pl. 2, fig. 18. 1937. Colombia, Panama, Costa Rica
108. P. ARCUATA (André) André, Énum. Bromél. 5. Dec. 13, 1888;
 Rev. Hortic. 60:565. Dec. 16, 1888. Neumannia arcuata André,
 Rev. Hortic. 58:108, pl. 1886. Colombia.
109. P. FOSTERIANA L. B. Smith, Contr. U. S. Nat. Herb. 29:
 305, fig. 26. 1949. Colombia.
110. P. UMBRATILIS L. B. Smith, Phytologia 4:216, pl. 1, figs.
 15-17. 1953. Peru.
111. P. HITCHCOCKIANA L. B. Smith, Phytologia 5:44, pl. 6,
 figs. 1-3. 1954. Ecuador.
112. P. (subgenus ?) SCEPTRIGERA Mez, Fedde Rep. Nov. Spec. 3:
 7. 1906. Ecuador.
113. P. ASPLUNDII L. B. Smith, Phytologia 4:214, pl. 1, figs.
 6-9. 1953. Peru.
114. P. SUBULIFERA L. B. Smith, Phytologia 4:215, pl. 1, figs.
 13, 14. 1953. Peru.
115. P. ALTENSTEINII (Lk., Kl. & Otto) Lem. Fl. des Serres ser
 1, 2:pl. 162. 1846. Venezuela.
 Var. a. ALTENSTEINII. Puya altensteinii Lk., Kl. & Otto, Pl.
 Rar. Hort. Berol. 1:1, pl. 1. 1840. Pitcairnia undulatifolia
 Hook. Bot. Mag. 72:pl. 4241. 1846, non hort. 1846. Lamproconus
altensteinii Lem. Jard. Fleur. 2:sub pl. 127. 1852. ? Pitcairnia
rhodostachys Hassk. Verh. Nat. Ver. Ned. Ind. 1, pt. 7:8. 1856;
 cf. Mez in Pflanzenreich 4, Fam. 32:275. 1935. Phlomostachys al-
tensteinii Beer, Bromel. 45. 1857. Neumannia altensteinii Griseb
 Goett. Nachr. for 1864:14. 1865. Flowering about 1 m high or
 less; leaves less than 12; inflorescence ca. 12 cm long.
 Var. b. GIGANTEA (Hook.) Baker, Handb. Bromel. 111. 1889.
Puya altensteinii var. gigantea Hook. Bot. Mag. 73:pl. 4309.
 1847. P. macrostachys A. Dietr. Allg. Gartenzeit. 16:145. 1848.
 P. macrostachya Schomb. Fl. & Fauna Guyana 1068. 1848, nomen.
Lamproconus giganteus Lem. Jard. Fleur. 2:sub pl. 127. 1852.
Phlomostachys gigantea Beer, Bromel. 47. 1857. Neumannia gigan-
tea Brongn. ex Beer, Bromel. 47. 1857, nomen. Flowering over 2 m
 high; leaves many; inflorescence ca. 30 cm long.
116. P. HETEROPHYLLA (Lindl.) Beer, Bromel. 68. 1857.
 Var. a. HETEROPHYLLA. Leaves dimorphic. Peru and Venezuela
 to Panama and Mexico.
 Forma a. HETEROPHYLLA. Puya heterophylla Lindl. Bot. Reg. 26:

pl. 71. 1840. *P. longifolia* C. Morr. Ann. Soc. Agr. Bot. Gand 2: 483, pl. 101. 1846. *Pitcairnia exscapa* Liebm. Ind. Sem. Hort. Haun. for 1848:12. 1848. *P. lindleyana* Lem. Jard. Fleur. 2: sub pl. 151. 1852. *P. morrenii* Lem. op. c. 3:pl. 291. 1852. *P. longifolia* Beer, Brömel. 67. 1857. *P. liebmannii* K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 7. 1858. Petals some shade of red.

Forma b. ALBIFLORA Standley & L. B. Smith, Lilloa 6:383. 1941. Petals white.

Var. b. EXSCAPA Mez in DC. Mon. Phan. 9:375. 1896. *Pitcairnia cernua* Kunth & Bouché, Ind. Sem. Hort. Berol. for 1848:12. 1848. *P. exscapa* Hook. Bot. Mag. 77:pl. 4591. 1851, non Liebm. 1848. Colombia, Ecuador.

117. *P. (subgenus ?) AUGUSTII* Harms, Notizblatt 10:211. 1928. Peru.

118. *P. AEQUATORIALIS* L. B. Smith, Contr. Gray Herb. 114:6. pl. 1, fig. 3. 1936. Ecuador.

119. *P. CRASSA* L. B. Smith, Lilloa 14:94, fig. 5. 1948. Bolivia.

120. *P. LIGNOSA* L. B. Smith, Contr. U. S. Nat. Herb. 29:309, fig. 30. 1949. Colombia.

121. *P. STENOPHYLLA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

122. *P. PAVONII* Mez in DC. Mon. Phan. 9:386. 1896. Ecuador.

123. *P. PUNGENS* H.B.K. Nov. Gen. & Sp. 1:294. 1816. *P. laevis* Willd. ex Schult. in R. & S. Syst. 7, pt. 2:1249. 1830, nomen.

P. concolor Baker, Journ. Bot. 19:269. 1881. Colombia to Peru.

124. *P. BILLBERGIOIDES* L. B. Smith, Publ. Mus. Hist. Nat. "Javier Prado" Univ. Nac. Mayor San Marcos ser. B, no. 13:4, fig. 6-8. 1963. Peru.

125. *P. (subgenus ?) MELANOPODA* L. B. Smith, Phytologia 9:249, pl. 2, figs. 11-13. 1963. Peru.

126. *P. LOPEZII* L. B. Smith, Phytologia 5:46, pl. 6, figs. 4-6. 1954. Peru.

127. *P. DECURVATA* L. B. Smith, sp. nov. *P. lopezii* L. B. Smith in sistema mea proxima sed scapo gracili, scapi bracteis quam internodiis brevioribus, floribus patentibus vel decurvatis secundis differt.

Stemless, flowering over 6 dm high; leaves subbulbous-rosulate; blades dimorphic, some reduced to slender pectinate-serrate dark spines, others foliaceous, deciduous, linear, acuminate, 32 cm long, 18 mm wide, entire above the line of abscission, pale-lepidote beneath, soon glabrous; scape erect, 5 mm in diameter, soon glabrous; scape-bracts linear-lanceolate, acuminate, much shorter than the upper internodes; inflorescence simple, lax, white-flocculose, becoming glabrous; floral bracts ovate, acuminate, to 23 mm long, exceeding all the pedicels; flowers secund, spreading to decurved at anthesis; pedicels slender, to 14 mm long, somewhat biangulate; sepals narrowly triangular, acuminate, 30 mm long, glabrous at anthesis, the posterior ones subalate-carinate toward base; petals over 8 cm long, naked, yellow; ovary 7/8 superior; ovules caudate. Pl. I, fig. 8: Flower x 1/2; fig. 9: Sepal x 1.

PERU: Lambayeque: Prov. Lambayeque: Rocky slope, between Beata de Humay and Km. 38 on the Olmos-Maranon Highway, alt. 150 m, May 21, 1963, A. López, A. Sagastegui & V. Collantes, no. 4047 (TRP, type).

128. P. VIOLASCENS L. B. Smith, Phytologia 6:439, pl. 2, figs. 12, 13. 1959. Ecuador.

129. P. FRACTIFOLIA L. B. Smith, sp. nov. P. palmeri S. Watson in systema mea proxima sed pedicellis brevioribus, floribus haud secundis differt.

Stemless (?), flowering 75 cm high; leaves bulbous-rosulate, entire; sheaths very broadly ovate, centrally castaneous, densely pale-lepidote, becoming glabrous; blades dimorphic, some much reduced, subulate, persistent, green, others foliaceous, linear, acuminate, over 55 cm long (incomplete), 12 mm wide, covered with appressed cinereous scales beneath, glabrous above, channeled; scape erect, slender, sparsely pale-lepidote; scape-bracts narrowly triangular, acuminate, much shorter than the upper internodes; inflorescence simple, lax, 19 cm long, subglabrous; floral bracts narrowly triangular, acuminate, to 10 mm long; flowers polystichous, not secund; pedicels spreading, slender, to 20 mm long, much exceeding all the floral bracts; sepals oblong, acute, 16 mm long, short-carinate above the tumid base; petals (immature) barely exceeding the sepals, red, naked; ovary 4/5 superior; ovules caudate. Pl. I, fig. 10: Flower x 1/2; fig. 11: Sepal x 1.

PERU: Amazonas: Prov. Chachapoyas: On rocks, Tialango, between Bagua and Ingenio, alt. 800 m, May 27, 1963, A. López, A. Sagastegui & V. Collantes, no. 4242 (TRP, type).

130. P. CARDENASII L. B. Smith, Phytologia 8:505, pl. 3, figs. 5-7. 1963. Bolivia.

131. P. STRAMINEA Poeppig ex Mez in DC. Mon. Phan. 9:427. 1896. Peru.

132. P. ALATA L. B. Smith, Lloydia 11:304, fig. 2. 1948. Ecuador.

133. P. (subgenus ?) SCANDENS Ule, Verhandl. Bot. Ver. Brandenburg. 48:140. 1907. Peru.

134. P. LUTESCENS Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4: 626. 1904. Ecuador.

135. P. ERRATICA L. B. Smith, Lloydia 11:305, fig. 3. 1948. Ecuador.

136. P. ACICULARIS L. B. Smith, Publ. Mus. Hist. Nat. "Javier Prado" Univ. Mayor San Marcos ser. B, no. 13:3, figs. 4, 5. 1963. Peru.

137. P. RIPARIA Mez, Fedde Rep. Spec. Nov. 12:416. 1913. Peru.

138. P. SPECTABILIS Mez in DC. Mon. Phan. 9:421. 1896. Colombia.

139. P. LAXISSIMA Baker, Handb. Bromel. 101. 1889. Colombia.

140. P. LONGIPES Mez, Fedde Rep. Spec. Nov. 12:416. 1913. Colombia.

141. P. ELLIPTICA Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4: 624. 1904. Ecuador.

142. P. TUMULICOLA L. B. Smith, Contr. U. S. Nat. Herb. 29:

- 314, fig. 34. 1949. Colombia.
143. *P. BIFLORA* L. B. Smith, Contr. Gray Herb. 127:17, pl. 1, figs. 1-3. 1939. Peru.
144. *P. MULTIFLORA* L. B. Smith, Contr. U. S. Nat. Herb. 29: 312, fig. 32. 1949. Colombia.
145. *P. KALBREYERI* Baker, Journ. Bot. 19:273. 1881. Colombia, Panama.
146. *P. VOLUBILIS* L. B. Smith, Phytologia 5:33, pl. 1, figs. 1-4. 1954. Colombia.
147. *P. NUBIGENA* Planch. Fl. des Serres ser. 1, 8:265, pl. 847. 1852-53. Venezuela.
148. *P. MERIDENSIS* Kl. ex Mez in DC. Mon. Phan. 9:385. 1896. *P. integrifolia* var. "*P.*" *meridensis* Kl. ex Baker, Handb. Bromel. 97. 1889. Venezuela.
149. *P. BELLA* L. B. Smith, Caldasia 3:240, fig. 1945. Colombia
Var. a. *BELLA*. Upper scape-bracts shorter than the internodes; sepals 24 mm long.
- Var. b. *DENSIOR* L. B. Smith, Contr. U. S. Nat. Herb. 29:300. 1949. Scape-bracts exceeding the internodes; sepals not over 17 mm long.
150. *P. (subgenus ?) CALOPHYLLA* L. B. Smith, Contr. U. S. Nat. Herb. 29:432, fig. 38. 1951. Colombia.
151. *P. SYLVESTRIS* L. B. Smith, Contr. Gray Herb. 117:29, pl. 2, fig. 27. 1937. Colombia.
152. *P. DOLICOPETALA* Harms, Notizblatt 12:530. 1935. Colombia.
153. *P. REFLEXIFLORA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Ecuador.
154. *P. SEMAPHORA* L. B. Smith, Caldasia 3:242. 1945. Colombia
155. *P. MACARENENSIS* L. B. Smith, Bot. Mus. Leafl. Harvard 16: 192, pl. 25, figs. 1-4. 1954. Colombia.
156. *P. GUARITERMAE* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.
157. *P. (subgenus ?) CALATHEOIDES* L. B. Smith, Contr. Gray Herb. 117:24, pl. 2, figs. 8-11. 1937. Peru.
158. *P. SODIROI* Mez, Bull. Herb. Boiss. ser. 2, 4:622. 1904. Ecuador.
159. *P. NOBILIS* Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4: 623. 1904. Ecuador.
160. *P. (subgenus ?) ADSCENDENS* L. B. Smith, Contr. U. S. Nat. Herb. 29:298, fig. 20. 1949. Colombia.
161. *P. SNEIDERII* L. B. Smith, Phytologia 6:434, pl. 1, figs. 5-7. 1959. Colombia.
162. *P. (subgenus ?) CYANOPETALA* Ulé, Verhandl. Bot. Ver. Brandenb. 48:139. 1907. Peru.
163. *P. BRACHYSPERMA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.
164. *P. SIMILIS* L. B. Smith, Contr. U. S. Nat. Herb. 29:434, fig. 40. 1951. Colombia.
165. *P. PALMOIDES* Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4: 626. 1904. Ecuador.
166. *P. (subgenus ?) EXIMIA* Mez, Fedde Rep. Nov. Spec. 3:5.

1906. Peru.

167. P. TRIANAE André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888.

Var. a. TRIANAE. Sepals obtuse; petals 35-45 mm long. Colombia, Bolivia.

Var. b. RETUSA L. B. Smith, Lloydia 11:305. 1948. Sepals retuse; petals not over 25 mm long. Ecuador.

168. P. OBLONGIFOLIA L. B. Smith, Phytologia 6:438, pl. 2, figs. 9-11. 1959. Ecuador.

169. P. LANUGINOSA R. & P. Fl. Peruv. 3:35, pl. 258. 1802.

Puya ruiziana Mez in DC. Mon. Phan. 9:491. 1896, as to synonymy, not as to specimen. Peru.

170. P. PARAGUAYENSIS L. B. Smith, Rev. Argentina Agron. 7: 163, figs. 4-6. 1940. Paraguay.

171. P. MACROBOTRYS André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

172. P. ORCHIDIFOLIA Mez, Fedde Rep. Spec. Nov. 17:114. 1921. Venezuela.

173. P. FENDLERI Mez in DC. Mon. Phan. 9:387. 1896. Venezuela

174. P. UNILATERALIS L. B. Smith, Phytologia 8:11, pl. 1, figs. 21-23. 1961. Ecuador.

175. P. LEPIDOPETALON L. B. Smith, Caldasia 5, no. 21:10, fig. 1948. Colombia.

176. P. PUSILLA Mez in DC. Mon. Phan. 9:429. 1896. French Guiana.

177. P. TYMPANI L. B. Smith, Phytologia 5:177, pl. 1, figs. 4-6. 1955. Venezuela.

178. P. (subgenus ?) OCCIDENTALIS L. B. Smith, Phytologia 4: 380, pl. 1, figs. 4-6. 1953. Colombia.

179. P. (subgenus ?) BREVICALYCINA Mez, Fedde Rep. Spec. Nov. 16:9. 1919. Peru, Venezuela.

180. P. PETRAEA L. B. Smith, Contr. U. S. Nat. Herb. 29:433, fig. 39. 1951. Colombia.

181. P. (subgenus ?) ANDREANA Linden Cat. 1873; Ill. Hortic. 20:146, pl. 139. 1873. P. lepidota Regel, Act. Hort. Petrop. 2: 435. 1873; Gartenfl. 22:389, pl. 772. 1873. Colombia.

182. P. GRUBBIANA L. B. Smith, sp. nov. P. jimenezii in sistema mea proxima sed pedicellis majoribus bracteas florigeras omnia superantibus differt.

Stemless (?), flowering 45 cm high; leaves fasciculate, persistent, nearly equaling the inflorescence, entire; sheaths ovate, ca. 2 cm long, dark castaneous, at first covered with a membrane of pale coalesced scales; blades dimorphic, some much reduced, subulate, green, others foliaceous, linear, caudate-acuminate, slightly narrowed toward base but not petiolate, 14 mm wide, glabrous; scape erect, slender, sparsely pale-lepidote; lower scape-bracts foliaceous, large, the highest ovate, caudate, shorter than the internode; inflorescence simple, lax, the axis 9 cm long, sparsely pale-lepidote; floral bracts ovate, acuminate, to 19 mm long, thin; flowers suberect, not secund; pedicels slender, to 22 mm long, all exceeding the floral bracts; sepals oblong, obtuse, 16 mm long, obscurely carinate; petals 4 cm long,

bearing a crenate scale at base, red; stamens included; ovary 3/4 superior; ovules caudate. Pl. I, fig. 12: Flower x 1/2; fig. 13: Sepal x 1.

COLOMBIA: Boyacá: Hill sabana on path from Báchira to Bógota soon after it climbs up out of Valley bottom, Sierra Nevada de Cocuy, alt. ca. 2150 m, August 21, 1957, P. J. Grubb, B. A. B. Curry & A. Fernández-Pérez, no. 649 (US, type).

183. P. (subgenus ?) CAULESCENS K. Koch ex Mez in DC. Mon. Phan. 9:425. 1896. Venezuela (?).

184. P. MICROCALYX Baker, Journ. Bot. 19:228. 1881. Venezuela Var. a. MICROCALYX. P. lutea hort. Linden ex Baker, Handb. Bromel. 104. 1889. Floral bracts lanceolate, acuminate; sepals triangular, acuminate; petals yellow.

Var. b. SCHLIMII (Baker) L. B. Smith, Phytologia 7:106. 1960. P. schlimii Baker, Handb. Bromel. 100. 1889. P. caracasana Baker, op. c. 103. Floral bracts lanceolate, acuminate; sepals triangular, acuminate; petals red.

Var. c. ELLIPTICA L. B. Smith, Phytologia 7:107. 1960. Floral bracts elliptic, apiculate; sepals oblong, subacute; petals red.

185. P. JOHANNIS L. B. Smith, Phytologia 5:179, pl. 1, figs. 11-13. 1955. Colombia.

Mexico, Central America
(cf. nos. 77 (out of order), 84, 90, 95, 103, 107, 116)

186. P. CHIRIQUENSIS L. B. Smith, Contr. U. S. Nat. Herb. 29: 281, fig. 6, 1949. Panama.

187. P. FLAGELLARIS L. B. Smith, Contr. U. S. Nat. Herb. 29: 280, fig. 5. 1949. Guatemala.

188. P. VALERII Standley, Journ. Wash. Acad. Sci. 17:246. 1927. Costa Rica.

189. P. TABULIFORMIS Linden Cat. 17:5. 1862. Mexico.

190. P. RECURVATA (Scheidw.) K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 4. 1858. Puya recurvata Scheidw. Allgem. Gartenzeit. 10:275. 1842. Pepinia recurvata E. Morr. ex Baker, Handb. Bromel. 110. 1889, nomen. Pitcairnia taenipetala Mez in DC. Mon. Phan. 9:382. 1896. Guatemala, British Honduras, Mexico.

191. P. (subgenus ?) LONGEBRACTEATA Bouché ex Mez in DC. Mon. Phan. 9:428. 1896. Guatemala (?).

192. P. MATUDEAE L. B. Smith, Phytologia 8:220, pl. 1, figs. 5, 6, 1962. Mexico.

193. P. WENDLANDII Baker, Journ. Bot. 19:306. 1881. Puya sulphurea Hook. Bot. Mag. 79:pl. 4696. 1853. Neumannia sulphurea K. Koch, Ind. Sem. Hort. Berol. for 1856:App. 2. 1857. Phlomostachys sulphurea Beer, Bromel. 46. 1857. Pitcairnia altensteinii sensu J. Donnell Smith, Enum. Pl. Guatimal. 3:79. 1889-1907. P. sulphurea Mez in DC. Mon. Phan. 9:456. 1896, non Andr. 1802. Costa Rica, Guatemala, Mexico.

194. P. MACROCHLAMYS Mez, Fedde Rep. Nov. Spec. 3:6. 1906. Guatemala.

195. P. HEMSLEYANA Mez in DC. Mon. Phan. 9:455. 1896, as to type only. P. ochroleuca Baker, Journ. Bot. 19:306. 1881; Baker

in Hemsl. Biol. Centr.-Am. Bot. 3:317, pl. 85. 1884, as to material cited, not as to basionym. P. petiolata Baker, Handb. Bromel. 112. 1889, in part, as to Salvin & Godman. Guatemala.

196. P. IMBRICATA (Brongn.) Regel, Gartenfl. 17:135. 1868.
Neumannia imbricata Brongn. Ann. Sci. Nat. ser. 2, 15:369. 1841.
Phlomostachys imbricata Beer, Bromel. 47. 1857. Pitcairnia imbricata Brongn. ex K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857, nomen. Mexico.

197. P. PETIOLATA (Koch & Bouché) Baker, Journ. Bot. 19:307. 1881. Neumannia petiolata Koch & Bouché ex K. Koch, Ind. Sem. Hort. Berol. for 1856:App. 2. 1857. Guatemala, British Honduras.

198. P. CARIOANA Wittm. Bot. Jahrb. 14, Beibl. 32:4. 1891. P. cariovana Mez in DC. Mon. Phan. 9:461. 1896. Guatemala.

199. P. MEMBRANIFOLIA Baker, Handb. Bromel. 109. 1889. Costa Rica.

200. P. DENSIFLORA Brongn. ex Lem. Hortic. Univ. 6:228. 1845. P. aurantiaca Tenore, Ann. Sci. Nat. ser. 4, 2:378. 1854. Phlomostachys densiflora Beer, Bromel. 46. 1857. Lamproconus aurantiacus E. Morr. ex Baker, Handb. Bromel. 114. 1889, nomen. Mexico.

201. P. OCHROLEUCA (Koch & Bouché) Baker, Journ. Bot. 19:306. 1881. Neumannia ochroleuca Koch & Bouché in K. Koch, Ind. Sem. Hort. Berol. for 1856:App. 2. 1857. Central America or Mexico?

202. P. THEAE Mez in DC. Mon. Phan. 9:376. 1896. Costa Rica.

203. P. SAXICOLA L. B. Smith, Contr. Gray Herb. 117:29. 1937. P. fulgens A. Dietr. Allgem. Gartenzeit. 19:137. May 3, 1851, non Dietr. 1837, nec Dcne. Jan. 1851. P. splendens Warsc. ex A. Dietr. Allgem. Gartenzeit. 19:176. May 31, 1851, non Poir. 1836. P. ovandensis Matuda, An. Inst. Biol. Mexico 23, nos. 1 & 2:90. 1953. P. lymannii Matuda, op. c. 99. Guatemala, Mexico.

204. P. PURPUSII L. B. Smith, Contr. Gray Herb. 117:27, pl. 2, figs. 20, 21. 1937. Mexico.

205. P. CALDERONII Standley & Smith in L. B. Smith, Contr. Gray Herb. 98:8, pl. 3, figs. 1, 2. 1932. Honduras, Salvador, Guatemala.

206. P. ROSEANA L. B. Smith, Contr. Gray Herb. 117:27, pl. 2, figs. 22, 23. 1937. Mexico.

207. P. MICHELIANA André, Rev. Hortic. 73:576, pl. 1901. Mexico.

208. P. CYLINDROSTACHYA L. B. Smith, Contr. Gray Herb. 117:25, pl. 2, figs. 14, 15. 1937. Mexico.

209. P. LEPROSA L. B. Smith, Contr. Gray Herb. 161:33, pl. 4, fig. 4. 1946. Mexico.

210. P. MODESTA L. B. Smith, Phytologia 7:417, pl. 1, figs. 1, 2. 1961. Mexico.

211. P. TUERCKHEIMII Donn. Smith, Bot. Gaz. 13:190. 1888. Guatemala.

Var. a. TUERCKHEIMII. Leaf-blades 10 mm wide; axis of the inflorescence slender, sparsely floccose; floral bracts exceeding the pedicels; sepals 25-30 mm long, obscurely carinate toward base.

Var. b. MACROLEPIS L. B. Smith, Lilloa 6:383, pl. 1, figs.

5, 6. 1941. Leaf-blades to 22 mm wide; axis of the inflorescence stout, densely white-floccose; floral bracts much exceeding the pedicels; sepals to 33 mm long, alate-carinate at base.

212. P. HINTONIANA L. B. Smith, Contr. Gray Herb. 114:7, pl. 1, figs. 8, 9. 1936. Mexico.

213. P. MOOREANA L. B. Smith, Contr. U. S. Nat. Herb. 29:523, fig. 79. 1954. Mexico.

214. P. FLEXUOSA L. B. Smith, Contr. Gray Herb. 114:6, pl. 1, fig. 7. 1936. Mexico.

215. P. PALMERI S. Watson, Proc. Am. Acad. 22:456. 1887. Mexico.

Var. a. PALMERI. Tillandsia secunda Sessé & Moc. Fl. Mex. ed. 2, 81. 1894. Floral bracts about half as long as all but the lowest pedicels.

Var. b. LONGEBRACTEATA L. B. Smith, Wrightia 2:64. 1960. Floral bracts elongate, equaling or exceeding all of the pedicels

216. P. PUBERULA Mez & Smith ex Donn. Smith, Bot. Gaz. 19:264. 1894. Guatemala.

217. P. TILLANDSIOIDES L. B. Smith, Contr. Gray Herb. 161:35, pl. 4, fig. 7. 1946. Mexico.

218. P. SCHIEDEANA Baker, Handb. Bromel. 95. 1889. Mexico.

219. P. PTEROPODA L. B. Smith, Contr. Gray Herb. 117:26, pl. 2, fig. 19. 1937. Mexico.

220. P. MICROPORA L. B. Smith, sp. nov. Ab omnibus speciebus adhuc cognitis foliis majoribus deciduis, scapo brevissimo sed inflorescentia elongata differt.

Stemless, flowering 16 cm high; leaves bulbous-rosulate, evidently all alike; sheaths ovate, ca. 3 cm long, dark castaneous at least toward apex, entire; blades deciduous, unknown above the abscission line, the base 7 mm wide, pale-lepidote beneath, spine-serrate; scape very short, hidden by the leaf-bases; scape-bracts densely imbricate, lanceolate, acuminate; inflorescence simple, subaxial, glabrous; axis slender; floral bracts ovate, acuminate, to 28 mm long, much exceeding all the pedicels, entire, thin; flowers secund, subspreading at anthesis; pedicels slender, subterete, to 6 mm long; sepals linear-lanceolate, acuminate, 24 mm long, alate-carinate; petals 35 mm long, naked, red; ovary more than 1/2 superior. Pl. I, fig. 14: Flower x 1/2; fig. 15: Sepal x 1.

MEXICO: México: Dist. Temascaltepec: On cliffs, Puerto Salitre, alt. 1300 m, February 7, 1932, G. B. Hinton, no. 936 (US, type).

221. P. KARWINSKYANA Schult. in R. & S. Syst. 7, pt. 2:1239. 1830. P. jaliscana S. Watson, Proc. Am. Acad. 22:456. 1887. Mexico.

222. P. MILITARIS L. B. Smith, Contr. Gray Herb. 161:34, pl. 4, fig. 5. 1946. Mexico.

223. P. (subgenus ?) FOLIACEA L. B. Smith, sp. nov. P. sordida L. B. Smith in systema mea proxima sed scapi bracteis inferioribus foliaceis perelongatis differt.

Short-caulescent, flowering 4 dm high; leaves subbulbous-rosulate; sheaths broadly ovate, ca. 2 cm long, dark castaneous;

blades dimorphic, some reduced to dark pectinate-serrate spines, others foliaceous, deciduous, linear, acuminate, slightly narrowed toward base, about equaling the inflorescence, 14 mm wide, sparsely white-flocculose at base, entire above the line of abscission; scape erect, slender, white-flocculose; scape-bracts erect, all exceeding the internodes, the lower foliaceous and equaling the leaves, the upper ovate, acuminate, scarcely larger than the floral bracts; inflorescence simple, laxly few-flowered, white-flocculose, the slender axis 7 cm long; floral bracts ovate, acuminate, to 22 mm long, much exceeding the slender terete 7 mm pedicels, entire; flowers suberect at anthesis, not secund; sepals linear-lanceolate, acuminate, 23 mm long, the posterior ones carinate at base; petals 5 cm long, naked, red; ovary 3/4 superior. Pl. I, fig. 16: Flower x 1/2; fig. 17: Sepal x 1.

MEXICO: Michoacan: Dist. Coalcoman: On tree, Naranjillo, alt. 1250 m, February 8, 1941, G. B. Hinton no. 15941 (US, type).

224. P. SORDIDA L. B. Smith, Contr. Gray Herb. 161:34, pl. 4, fig. 6. 1946. Mexico.

225. P. MONTICOLA Brandegee, Zool. 5:197. 1905. Mexico.

226. P. RINGENS Kl. ex Lk., Kl. & Otto, Ic. Pl. Rar. 63, pl. 25. 1842. P. latifolia Wendl. Hort. Herrenh. 1:5, pl. 3. 1798, non Ait. 1789, cf. Mez in Pflanzenreich 4, Fam. 32:266. 1935. P. montalbensis hort. Linden ex Otto & Dietr. Allgem. Gartenzeit. 19:138. 1851. P. warszewitziana Kl. ex Beer, Bromel. 66. 1857. P. karwinskyana Beer, Bromel. 161. 1857. P. fulgens hort. ex Baker, Handb. Bromel. 101. 1889, nomen. Mexico.

227. P. CHIAPENSIS Miranda, An. Inst. Biol. Mexico 24: [69], fig. 1. 1953. Mexico.

228. P. OAXACANA L. B. Smith, Contr. Gray Herb. 117:25, pl. 2, figs. 16, 17. 1937. Mexico.

229. P. SECUNDIFLORA L. B. Smith, Contr. Gray Herb. 114:7, pl. 1, figs. 1, 2. 1936. Mexico.

230. P. CARNEA Beer, Oesterr. Bot. Zeitschr. 8:182. 1858.

Puva carnea Regel, Cat. Pl. Hort. Aksak. 117. 1860. Panama.

231. P. XANTHOCALYX Mart. Hort. Monac. Sem. for 1848:4. 1848; Linnaea 24:195. 1851. P. sulphurea sensu K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 5. 1858, non Andr. 1802. P. flaves-
cens Baker, Bot. Mag. 103:pl. 6318. 1877, non K. Koch, 1858.
Mexico.

West Indies
(cf. no. 71)

232. P. SAMUELSSONII L. B. Smith, Contr. Gray Herb. 117:28, pl. 2, figs. 24-26. 1937. P. xanthocalyx sensu Mez in Urb. Symb. Ant. 8:87. 1920, non Mart. 1848. Hispaniola.

233. P. BROMELIIFOLIA L'Hérit. Sert. Angl. 7. 1789. Hepetis angustifolia Sw. Prodr. 56. 1788, non Pitcairnia angustifolia Ait. 1789. H. bromeliifolia Salisb. Prodr. 247. 1796. Pitcairnia redouteana Beer, Bromel. 57. 1857, non Schult. 1830. Jamaica

234. P. ANGUSTIFOLIA [Soland. in] Ait. Hort. Kew. 1:401. 1789. P. angustifolia Redouté, Lil. 2:pl. 76. 1804, non Ait. 1789. P.

furfuracea sensu Jacq. f. Eclog. Pl. 1:117. 1815, non Willd. 1809
P. ramosa Jacq. f. Eclog. Pl. 1:154. 1816. P. tomentosa Dietr.
 Lex. Nachtr. 6:305. 1820, nomen; Dietr. ex Beer, Bromel. 64. 1857
P. redouteana Schult. in R. & S. Syst. 7, pt. 2:1243. 1830. P.
angustifolia Ryan ex Schult. l. c., nomen. P. ramosa K. Koch,
 Ind. Sem. Hort. Berol. for 1857:App. 5. 1858, non Jacq. 1816. P.
intermedia hort. ex K. Koch, l. c. P. skinneri hort. ex K. Koch,
 l. c. P. alta sensu Mez in DC. Mon. Phan. 9:406. 1896, non
 Hassk. 1856. Hepetis angustifolia sensu Mez, op. c. 973, non Sw.
 1788. Puerto Rico, Lesser Antilles.

235. P. FUERTESII Mez, Fedde Rep. Spec. Nov. 12:415. 1913. P.
tomentosa sensu Mez in DC. Mon. Phan. 9:389. 1896, non Dietr. ex
 Beer 1857. P. fulgens Mez in Urb. Symb. Ant. 8:87. 1920,
 non Dcne. ex Dietr. 1851. Dominican Republic.

236. P. GRACILIS Mez in DC. Mon. Phan. 9:407. 1896. Lesser
 Antilles.

237. P. JIMENEZII L. B. Smith, Phytologia 7:1, pl. 1, figs.
 3-5. 1959. Dominican Republic.

238. P. PLATYPHYLLA Schrad. Blumenb. 26. 1827. P. bromelii-
folia sensu Ait. Hort. Kew. 1:401. 1789, non L'Hérit. 1789. P.
latifolia Andr. Bot. Repos. 5:pl. 322. 1803, non Ait. 1789.
 Jamaica.

239. P. CUBENSIS (Mez) L. B. Smith, Contr. Gray Herb. 117:24,
 pl. 2, figs. 12, 13. 1937. P. latifolia var. cubensis Mez in DC.
 Mon. 9:396. 1896. Cuba.

240. P. LATIFOLIA Ait. Hort. Kew. 1:401. 1789. Hepetis lati-
folia Raeuschel ex Schult. in R. & S. Syst. 7, pt. 2:1247. 1830,
 nomen. Billbergia latifolia hort. Belg. ex Heynh. Nom. 2:69.
 1846, nomen. Pitcairnia furfuracea Beer, Bromel. 59. 1857. P.
latifolia Jacq. ex Beer, op. c. 61. P. alta sensu Baker, Bot.
 Mag. 108:pl. 6606. 1882, non Hassk. 1856. Hepetis pyramidata
 Rich. ex Baker, Handb. Bromel. 92. 1889, nomen. Puerto Rico (?),
 Lesser Antilles.

241. P. SPICATA (Lam.) Mez in DC. Mon. Phan. 9:392. 1896.
 Lesser Antilles.

Var. a. SPICATA. Bromelia spicata Lam. Encycl. 1:146. 1783.
Pitcairnia latifolia Redouté, Lil. pl. 74. 1804, non Ait. 1789.
P. bracteata a. Ait. Hort. Kew. ed. 2, 2:202. 1811. P. racemosa
 Woodf. ex Schult. in R. & S. Syst. 7, pt. 2:1245. 1830, nomen.
P. fulgens Dcne. ex A. Dietr. Allgem. Gartenzeit. 19:25. 1851.
P. gireoudiana A. Dietr. Allgem. Gartenzeit. 21:105. Ap. 1853.
P. bracteata var. fulgens Regel, Gartenfl. 2:163. 1853. ?Bill-
bergia bifrons Lindl. Journ. Hort. Soc. London 8:54. June 1853.
P. bracteata var. gireaudiana Beer, Bromel. 51. 1857. Billbergia
pyramidalata Beer, op. c. 123. Pitcairnia commutata Regel, Garten-
 fl. 16:289. 1867. P. bracteata var. commutata Regel, op. c. 17:
 8. 1868. Petals red.

Var. b. SULPHUREA (Andr.) Mez in DC. Mon. Phan. 9:393. 1896.
P. sulphurea Andr. Bot. Repos. 4:pl. 249. 1802. P. bracteata /3.
 Ait. Hort. Kew. ed. 2, 2:202. 1811. P. bracteata /3. sulphurea
 Ker-Gawl. Bot. Mag. 34:pl. 1416. 1811. Tillandsia vincentiensis
 E. H. L. Krause, Beih. Bot. Centr. 32, pt. 2:337. 1914. Petals

yellow.

242. *P. ALBUCIFOLIA* Schrad. Blumenb. 24. 1827. ? *P. spec.*
fol. linearilanc. etc. Voigt, Pl. Rar. Hort. Belved. in Sylloge
 2:52. 1812 (?); cf. R. & S. Syst. 7, pt. 2:1250. 1830. *P. fur-*
furacea Sims, Bot. Mag. 53:pl. 2657. 1826, non Willd. 1809. *P.*
intermedia hort. ex Sims, l. c. nomen. *P. ringens* sensu Beer,
 Bromel. 55. 1857, non Kl. 1842. *P. affinis* K. Koch, Ind. Sem.
 Hort. Berol. for 1857:App. 5. 1858. *P. angustifolia* E. Morr. ex
 Baker, Handb. Bromel. 92. 1889, nomen. Lesser Antilles.

243. *P. (subgenus ?) GLYMIANA* K. Koch, Wochenschr. Gärtn. 11:
 89. 1868. *Hechtia glymiana* K. Koch, op. c. 90, nomen. *Puya*
glymiana K. Koch, l. c. nomen. *Pitcairnia firma* Baker, Journ.
 Bot. 19:268. 1881. *P. jacksoni* K. Koch ex Baker, l. c. nomen.
 West Indies (?).

244. *P. ELIZABETHAE* L. B. Smith, Bromel. Soc. Bull. 8:21,
 figs. 1958. Dominican Republic.

245. *P. DOMINGENSIS* L. B. Smith, sp. nov. *P. jimenezii* L. B.
 Smith in systema mea proxima sed foliorum laminis dimorphis
 differt.

Nearly stemless, flowering 6 dm high; leaves many in a fasci-
 culate rosette, the larger ones to over 8 dm long; sheaths ovate,
 3-5 cm long, dark castaneous, entire; blades dimorphic, some re-
 duced to subulate entire dark spines, others foliaceous linear,
 long-acuminate, slightly narrowed toward base, 15-20 mm wide,
 glabrous, sparsely serrate toward base; scape erect, slender,
 sparsely white-flocculose; scape-bracts erect, the lower folia-
 ceous and exceeding the internodes, the upper narrowly triang-
 ular, caudate-acuminate, shorter than the internodes; inflores-
 cence simple, subdense at anthesis, sparsely white-flocculose,
 the axis 7 cm long; floral bracts like the upper scape-bracts,
 the lower much exceeding the pedicels, the upper shorter; pedi-
 cels slender, to 8 mm long; sepals linear, obtuse, 19 mm long,
 ecarinate; petals linear, obtuse, 4 cm long, red, bearing an ob-
 long subtruncate 5 mm long scale at base; stamens included; ovary
 5/8 superior; ovules caudate (?). Pl. I, fig. 18: Flower x 1/2;
 fig. 19: Sepal x 1.

DOMINICAN REPUBLIC: Samaná: Bahia de San Lorenzo, Bahia de Sa-
 maná, cultivated and flowered by L. Ariza Julia in 1961, J. J.
Jiménez no. 4444 (US, type; hb. Jiménez, isotype).

Amazon-Orinoco Basin

246. *P. UNDULATA* Scheidw. Allgem. Gartenzeit. 10:275. 1842.
P. undulatifolia hort. ex Lem. Fl. des Serres 2:sub pl. 162.
 1846, nomen. *P. speciosissima* hort. ex Regel, Gartenfl. 23:1.
 1874, nomen. *Lamproconus undulatus* Lem. Jard. Fleur. 2:sub pl.
 127. 1852. Amazonian Brazil (?).

247. *P. EGLERI* L. B. Smith, Phytologia 8:228, pl. 2. figs.
 11-14. 1962. Brazil: Pará.

Planalto of Brazil

248. P. ULEI L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:5, pl. 1, figs. h-j. 1952.
249. P. (subgenus ?) ANTERICOIDES Mez in Mart. Fl. Bras. 3, pt. 3:441. 1894.
250. P. TORRESIANA L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:4, pl. 1, figs. f, g. 1952.
251. P. DECIDUA L. B. Smith, Arquiv. Bot. Estado São Paulo n. sér. 1:110, pl. 114. 1943.
252. P. GLAZIOVII Baker, Handb. Bromel. 92. 1889.
253. P. LANCIFOLIA Mez in Mart. Fl. Bras. 3, pt. 3:447. 1894.
Var. a. LANCIFOLIA. Sepals 35 mm long.
- Var. b. MINOR. L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:4. 1952. Sepals 24 mm long.
254. P. ENCHOLIRIOIDES L. B. Smith, Arquiv. Jard. Bot. Rio de Janeiro 10:146, fig. 6. 1950.
255. P. CARINATA Mez in Mart. Fl. Bras. 3, pt. 3:448. 1894.
P. morelii sensu Baker, Handb. Bromel. 103. 1889, in part, non Lem. 1846.
256. P. FLAMMEA Lindl. Bot. Reg. 13:pl. 1092. 1827.
Var. a. FLAMMEA. ? Tillandsia laevis Vell. Fl. Flum. 133. 1825; Icon. 3:pl. 126. 1835, non Pitcairnia laevis Willd. 1830.
P. olfersii Link, Verh. Gartenbauver. Berlin 7:363, pl. 3. 1831.
? P. fulgens Poit. Rev. Hortic. 3:157. Jan. 1836; Mez in DC. Mon. Phan. 9:430. 1896. P. morelii Lem. Hortic. Univ. 7:231, pl. 1846. P. fulgens Dcne. in Cat. Linden 18. 1850; Dcne. ex A. Dietr. Allgem. Gartenzzeit. 19:137. 1851. ? P. rubicunda K. Koch & Bouché, Ind. Sem. Hort. Berol. for 1856:App. 3. 1857. ? P. moreliana hort. ex K. Koch & Bouché, l. c., nomen. ? P. laevis Beer, Bromel. 60. 1857. P. decaisnei K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 5. 1858. ? P. l'herminieri hort. Paris ex K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 8. 1858. P. roezlii sensu Baker, Bot. Mag. 117:pl. 7175. 1891, non E. Morr. 1885. ? P. amaryllidiflora hort. ex Gentil, Pl. Cult. Serres Brux. 153. 1907, nomen, cf. Mez in Pflanzenreich 4, Fam. 32:260. 1935. ? P. mordii hort. ex Gentil, l. c. Leaf-blades mostly 20-36 mm wide, covered beneath with spreading scales; axis of the inflorescence glabrous, usually turning black on drying.
Var. b. ROEZLII (E. Morr.) L. B. Smith, Arquiv. Bot. Estado São Paulo n. sér. 1:111. 1943. P. roezlii E. Morr. Belg. Hortic. 35:285, pls. 18, 19. 1885. P. hypoleuca Mez in Mart. Fl. Bras. 3, pt. 3:458. 1894. Leaf-blades mostly 20-36 mm wide, covered beneath with spreading scales; axis of the inflorescence lepidote, usually remaining pale.
- Var. c. CORCOVADENSIS (Wawra) L. B. Smith, Arquiv. Bot. Estado São Paulo n. sér. 1:112. 1943. P. corcovadensis Wawra, Oesterr. Bot. Zeitschr. 12:384. 1862. Leaf-blades glabrous; inflorescence lax, few-flowered, remaining pale; axis glabrous.
- Var. d. GLABRIOR L. B. Smith, Arquiv. Bot. Estado São Paulo n. sér. 1:112. 1943. ? P. cinnabarina A. Dietr. Allgem. Gartenzzeit. 18:202. 1850. ? P. australis K. Koch, Ind. Sem. Hort. Berol. for

1856:App. 4. 1857. Leaves glabrous; inflorescence dense at least toward apex, many-flowered, remaining pale; axis glabrous; petals red.

Var. e. PALLIDA L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112, pl. 115. 1943. Leaves glabrous; inflorescence dense at least toward apex, many-flowered, remaining pale; axis glabrous; petals yellowish white.

Var. f. FLOCCOSA L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112. 1943. P. muscosa Mart. in R. & S. Syst. 7, pt. 2: 1240. 1830. P. selliana Baker, Handb. Bromel. 100. 1889. P. dietrichiana Wittm. Bot. Jahrb. 13, Beibl. 29:15. 1891. P. pruinosa Mez in Mart. Fl. Bras. 3, pt. 3:454. 1894, non H.B.K. 1816. P. clausenii Mez, l. c. P. selloviana Mez in DC. Mon. Phan. 9: 433. 1896. P. weddelliana Mez in DC. Mon. Phan. 9:434. 1896, non Baker 1889. P. minarum Mez in Pflanzenreich 4, Fam. 32:636. 1935. Leaf-blades less than 20 mm wide, lepidote; inflorescence remaining pale; axis lepidote.

257. P. ALBIFLOS Herb. Bot. Mag. 53:pl. 2642. 1826. Tillandsia schuechii Beer & Fenzl, Allg. Gartenzeit. 14:265. 1846. P. odorata hort. ex Beer & Fenzl, op. c. 266, nomen. P. elata Liebm. Ind. Sem. Hort. Haun. 14. 1849. Cochliopetalum albiflos Beer, Bromel. 68. 1857. C. flavescens Beer, op. c. 69. C. schlichii Beer, l. c. Pitcairnia flavescens hort. ex Beer, l. c., nomen; K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 9. 1858. Cochliopetalum odoratum Hemsl. Biol. Centr.-Am. Bot. 3:317. 1884, nomen, erroneously attributed to Beer. P. xanthocalyx sensu Baker, Handb. Bromel. 107. 1889, in part, as to Cochliopetalum flavescens Beer.

258. P. STAMINEA Lodd. Bot. Cab. 8:pl. 722. 1823. P. speciosa hort. Lovan ex Schult. in R. & S. Syst. 7, pt. 2:1250. 1830, nomen; cf. Mez in Pflanzenreich 4, Fam. 32:262. 1935. Cochliopetalum stamineum Beer, Bromel. 70. 1857. Orthopetalum stamineum Baker, Handb. Bromel. 97. 1889, nomen attributed to Beer. Pitcairnia canaliculata Baker, op. c. 99. P. longicauda Hornem. ex Mez in Mart. Fl. Bras. 3, pt. 3:445. 1894. P. staminea var. longicauda Mez in DC. Mon. Phan. 9:439. 1896, attributed to Hornem.

259. P. BEYCALEMA Beer, Bromel. 63. 1857. P. muscosa sensu Hook. Bot. Mag. 80:pl. 4770. 1854, non Mart. 1830. P. leiolema hort. ex Beer, Bromel. 62. 1857, nomen.

260. P. SUAVEOLENS Lindl. Bot. Reg. 13:pl. 1069. 1827. P. odorata Wawra, It. Sax.-Cob. 174. 1883.

West Africa

261. P. FELICIANA (Aug. Chevalier) Harms & Mildbr. Notizblatt 14:118. 1938. Willrussellia feliciana Aug. Chevalier, Bull. Soc. Bot. France 84:503, fig. 1. 1937. (French Guinea).

EXCLUDED AND DOUBTFUL TAXA

262. P. alpestris (Poepp. & Endl.) L. H. Bailey, Cyclop. Am. Hort. 1359. 1901 = PUYA ALPESTRIS Poepp. & Endl.

263. *P. bangii* Baker, Mem. Torrey Bot. Club 6:124. 1896 = PUYA STENOThYRSA (Baker) Mez.
264. *P. brachiata* Cham. in Link, Jahrb. 1, pt. 2:192. 1820, nomen, Unknown.
265. *P. brachystachya* Baker, Handb. Bromel. 118. 1889 = PUYA BRACHYSTACHYA (Baker) Mez.
266. *P. brevifolia* (Griseb.) R. E. Fries, Nov. Act. Reg. Soc. Sci. Upsal. ser. 4, 1, pt. 1:73. 1905 = ABROMEITIELLA BREVIFOLIA (Griseb.) Castellanos.
267. *P. brocchinia* D. Dietr. Syn. Pl. 2:1062. 1840 = BROCCHEA PANICULATA Schult. f.
268. *P. bromeliifolia* var. *graminifolia* Griseb. Fl. Brit. W. Ind. 594. 1864. Unknown. No species known from Jamaica has entire leaves 4 lines (ca. 8 mm) wide.
269. *P. caerulea* - cf. *coerulea*.
270. *P. chilensis* Lodd. Cat. ex Loudon, Hort. Brit. 118. 1830, nomen = PUYA CHILENSIS Mol.
271. *P. chlorantha* (Spegazz.) Castellanos, Com. Mus. Nac. Buenos Aires 2:142. 1925 = ABROMEITIELLA BREVIFOLIA (Griseb.) Castellanos.
272. *P. chrysanthia* Phil. Fl. Atacam. 50. 1860 = DEUTEROCOHNIA CHRYSANTHA (Phil.) Mez.
273. *P. ciliaris* hort. ex Pasq. Cat. Ort. Bot. Nap. 81. 1867, nomen. Unknown.
274. *P. coarctata* Pers. Syn. 1:344. 1805 = PUYA CHILENSIS Mol.
275. *P. coerulea* Benth. ex Baker, Handb. Bromel. 121. 1889 (first valid combination) = PUYA COERULEA Lindl.
276. *P. coerulea* sensu Baker, Handb. Bromel. 121. 1889, in part, as to PUYA ALPESTRIS (Poepp. & Endl.) Gay and its synonym, *P. whytei* Hook. f.
277. *P. crystalina* Pers. Syn. Pl. 1:344. 1805 = PUYA LANUGINOSA (R. & P.) Schult. f.
278. *P. darblayana* André, Rev. Hortic. 62:33, fig. 1890 = P. CORALLINA X PANICULATA.
279. *P. decora* hort. Linden ex Beer, Bromel. 108. 1857, nomen = BILLBERGIA AMOENA var. MINOR (Antoine & Beer ex Beer) L. B. Smith?
280. *P. discolor* Loisel. Herb. Gen. Amat. 5:pl. 345. 1821 = BILLBERGIA AMOENA (Lodd.) Lindl. var. AMOENA.
281. *P. distacaia* Beer, Bromel. 58. 1857 = BILLBERGIA DISTACHIA (Vell.) Mez var. DISTACHIA.
282. *P. dyckiooides* Baker, Handb. Bromel. 118. 1889 = PUYA DYCKIOIDES (Baker) Mez
283. *P. elegans* Regel, Cat. Hort. Aksak. 112. 1860, nomen. Unknown.
284. *P. fastuosa* C. Morr. Ann. de Gand. 3:411, pl. 161. 1847 = BILLBERGIA PYRAMIDALIS (Sims) Lindl. var. PYRAMIDALIS.
285. *P. flabelliformis* hort. ex Gentil, Pl. Cult. Serres Jard. Bot. Brux. 153. 1907, nomen. Unknown.
286. *P. floccosa* Regel, Gartenfl. 23:307. 1874; Act. Hort. Petrop. 3:124. 1875 = PUYA FLOCCOSA (Linden) E. Morr.
287. *P. formosa* Mez in Pflanzenreich 4, Fam. 32:296, 654.

1935, erroneously attributed to Spegazzini = PUYA SPATHACEA (Griseb.) Mez.

288. *P. furfuracea* Willd. Enum. 1:346. 1809 = PUYA FURFURACEA (Willd.) L. B. Smith.

289. *P. grandiflora* Mez, Fedde Rep. Nov. Spec. 3:5. 1906, non Hook. 1861 = PUYA PITCAIRNIOIDES L. B. Smith.

290. *P. guyanensis* Baker, Handb. Bromel. 120. 1889 = PUYA FLOCCOSA (Linden) E. Morr.

291. *P. humilis* hort. ex Sweet, Hort. Brit. ed. 1, 425. 1827, nomen. Unknown.

292. *P. iridiflora* Beer, Bromel. 51. 1857. Description inadequate.

293. *P. lanata* F. G. Dietr. Lexicogr. Nachtr. 6:303. 1820 = PUYA LANATA (H.B.K.) Schult. f.

294. *P. lorentziana* Mez in DC. Mon. Phan. 9:373. 1896 = ABRO-MEITIELLA LORENTZIANA (Mez) Castellanos.

295. *P. macrophylla* Willd. ex R. & S. Syst. 7, pt. 2:1283. 1830 = AECHMEA LATIFOLIA (Willd. ex Schult.) Kl. ex Baker.

296. *P. maronii* Andr , Rev. Hortic. 56:222. 1884; 57:108, fig. 1885 = P. CORALLINA X ALTENSTEINII.

297. *P. media* hort. ex Sweet, Hort. Brit. ed. 1, 425. 1827, nomen. Unknown.

298. *P. megastachya* Baker, Handb. Bromel. 120. 1889 = PUYA ROEZLII E. Morr.

299. *P. meridensis* hort. ex Baker, Handb. Bromel. 121. 1889, nomen = PUYA FLOCCOSA (Linden) E. Morr.

300. *P. micrantha* Lindl. Bot. Reg. 29:Misc. 44. 1843 = POS-TERELLA MICRANTHA (Lindl.) L. B. Smith.

301. *P. monstrosa* Beer, Bromel. 68. 1857. Description inadequate.

302. *P. olivacea* (Wittm.) Mez in Pflanzenr ich 4, Fam. 32:247. 1935 = PUYA OLIVACEA Wittm.

303. *P. pasto nsis* Baker, Handb. Bromel. 122. 1889 = PUYA LEHMANNIANA L. B. Smith.

304. *P. pearcei* Baker, Handb. Bromel. 120. 1889 = PUYA PEARCEI (Baker) Mez

305. *P. penduliflora* Mez in DC. Mon. Phan. 9:463. 1896 = GLO-MEROPITCAIRNIA PENDULIFLORA (Griseb.) Mez.

306. *P. penduliflora* A. Rich. in Sagra Hist. Cuba 11:262. 1850 = HOHENBERGIA PENDULIFLORA (A. Rich.) Mez.

307. *P. philippii* Baker, Handb. Bromel. 122. 1889 = PUYA VIO-LACEA (Bronn.) Mez.

308. *P. plumieri* Baker, Handb. Bromel. 107. 1889 = GUZMANIA PLUMIERI (Griseb.) Mez.

309. *P. pyramidata* Link, Enum. 1:308. 1821, as to material, not as to basonym = PUYA FURFURACEA (Willd.) L. B. Smith.

310. *P. pyramidata* (R. & P.) Pers. Syn. Pl. 1:344. 1805 = PUYA PYRAMIDATA (R. & P.) Schult. f.

311. *P. quetameensis* Baker, Handb. Bromel. 121. 1889 = PUYA FLOCCOSA (Linden) E. Morr.

312. *P. regia* Witte, Tijdschr. Tuinb. Ed. Bos. 5:pl. 3, fig. 34. 1900; Gentil, Pl. Cult. Serres Jard. Bot. Brux. 152. 1907 =

P. CORALLINA X SPICATA.

313. P. robusta Rusby, Bull. New York Bot. Gard. 6:488. 1910 = PUYA SANCTAE-CRUCIS (Baker) L. B. Smith.

314. P. rusbyi Baker, Handb. Bromel. 122. 1889 = PUYA RUSBYI (Baker) Mez.

315. P. sanctae-crucis Baker, Handb. Bromel. 120. 1889 = PUYA SANCTAE-CRUCIS (Baker) L. B. Smith.

316. P. secunda F. G. Dietr. Lexicon. Nachtr. 6:301. 1820 = TILLANDSIA SECUNDA H.B.K.

317. P. spathacea Griseb. Goett. Abh. 24:329. 1879 = PUYA SPATHACEA (Griseb.) Mez.

318. P. spathulata hort. ex Lem. Fl. des Serres 3:pl. 227. 1847 = AECHMEA BASI-LATERALIS (Lem.) L. B. Smith

319. P. sphaerocephala Baker, Handb. Bromel. 123. 1889 = PUYA VENUSTA Phil.

320. P. spinosa Gill. ex Baker, Handb. Bromel. 136. 1889, nomen = DYCKIA FLORIBUNDA Griseb.

321. P. splendens Poir. in Rev. Hort. sér. 1, 3:157. 1836.

Not understood. May equal PITCAIRNIA FLAMMEA var. GLABRIOR L. B. Smith.

322. P. stenothyrsa Baker, Handb. Bromel. 122. 1889 = PUYA STENOThYRSA (Baker) Mez.

323. P. stricta André, Bromel. Andr. 31. 1889. Sterile, description inadequate.

324. P. vallesoletana Lexarza in La Llave & Lexarza, Nov. Veg. Descr. fasc. 1:19. 1824. Description inadequate. Probably related to P. RINGENS Kl.

325. P. venusta Baker, Handb. Bromel. 123. 1889 = PUYA VENUSTA Phil.

326. P. violacea Brongn. Ann. Fl. & Pom. ser. 3, 1:116. 1847; Allgem. Gartenzeit. 15:299. 1847 = PUYA VIOLACEA (Brongn.) Mez.

327. P. virescens K. Koch, Ind. Sem. Hort. Berol. for 1857: App. 4. 1858 = GUZMANIA VIRESSENS (Hook. f.) Mez.

328. P. viridiflora Regel, Ind. Sem. Hort. Petrop. for 1866: 81. 1867 = VRIESEA VIRIDIFLORA (Regel) Wittm. ex Mez.

329. P. weddelliana Baker, Handb. Bromel. 122. 1889 = PUYA WEDDELLIANA (Baker) Mez.

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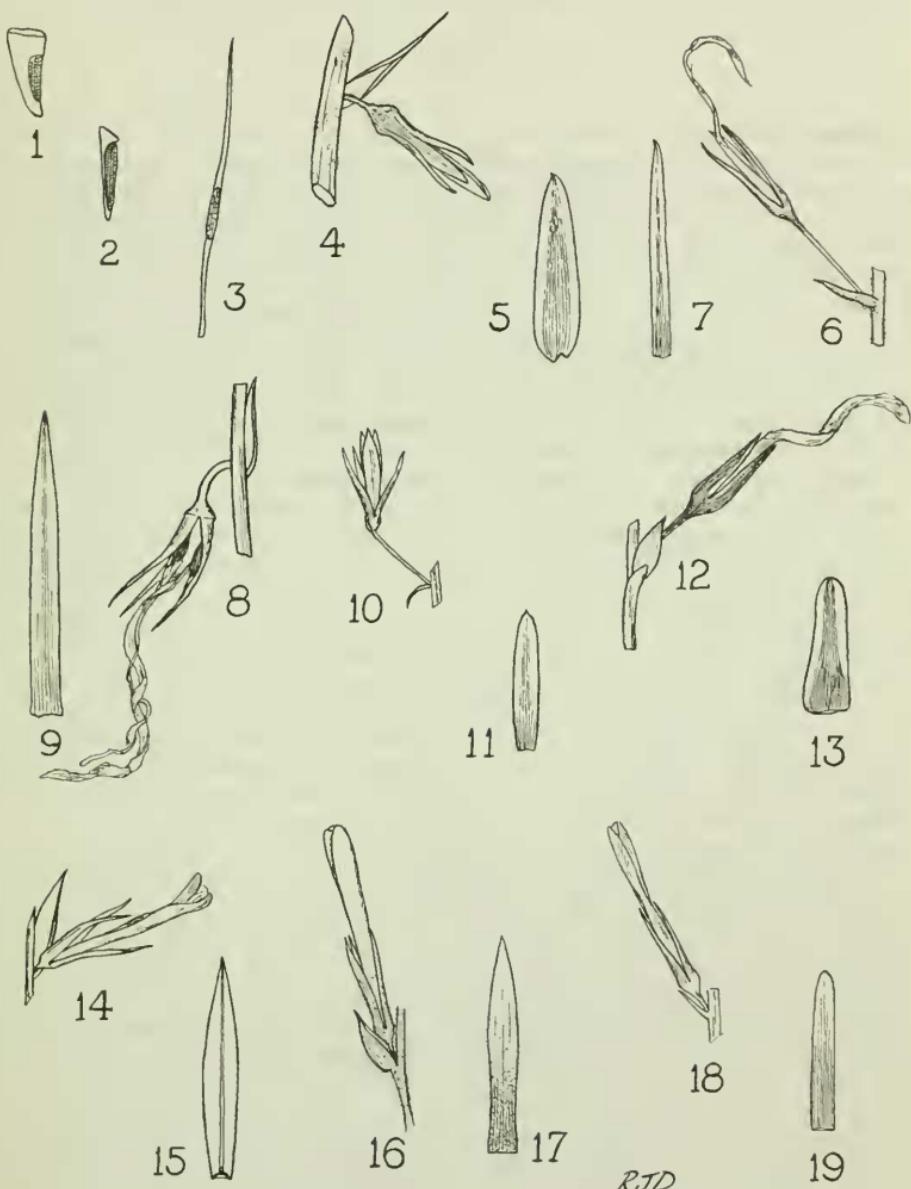
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Plate I



RJD

Fig. 1: *Pitcairnia caricifolia* (Holt & Blake 425); fig. 2: *P. angustifolia* (Cook & Collins 267); fig. 3: *P. paniculata* (Killip & Smith 25074); fig. 4-5: *P. vargasiana*; fig. 6-7: *P. halophila*; fig. 8-9: *P. decurvata*; fig. 10-11: *P. fractifolia*; fig. 12-13: *P. grubbiana*; fig. 14-15: *P. micropoda*; fig. 16-17: *P. foliacea*; fig. 18-19: *P. domingensis*.